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Gleanings in Bee Culture



Christmas Greetings to the readers of GLEANINGS. Presented for the publishers by a junior member, Ralph Root Boyden.

Vol. XXXV

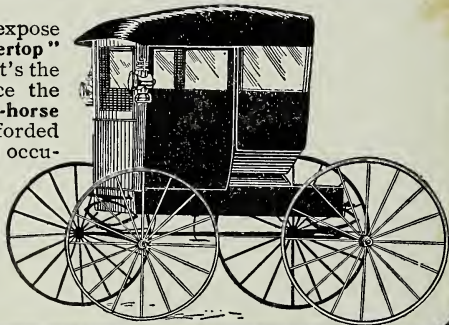
December 15, 1907

No. 24

Keep Dry and Comfortable

WHEN YOU DRIVE

Be snug and comfortable. Don't expose yourself to the elements. The "**Shelbertop**" Buggy will protect you on your drives. It's the first real improvement in buggies since the days of the "**Deacon's wonderful one-horse Shay.**" The first buggy that ever afforded immediate and absolute protection to its occupants from rain, snow, mud, wind, dust—the only buggy with a top that closes up tight in a moment and actually shuts out every drop of rain, while at the same time it allows ample and thorough ventilation and a clear, unobstructed vision in every direction.



THE "SHELBERTOP" BUGGY

The top of this buggy is so constructed that this absolute and complete protection is always on the buggy—in fact, a part of the buggy—out of sight when not in use, right at hand when needed. Three simple, easy, one-hand movements—done in four seconds—close the buggy without leaving the seat, dropping the lines or stopping the horse.

When the storm is over, three movements change the buggy back again to an open, fair-weather buggy.

This is certainly the buggy for the farmer and the man who drives much. It makes a wet, blustering day worth almost as much as a dry one. You can ride in it to transact business at the neighbor's, or in town, as comfortably as you could in any other buggy on a clear, bright, dry day.

The improved top on the "**Shelbertop**" Buggy is actually lighter than an ordinary

buggy-top, looks better, and lasts longer, while it has none of its bad features. There are no bows in the way to bump the head against when entering or leaving the buggy. The door is clear, large and roomy. There are no doors to rattle or stick.

There are so many new and desirable features in the "**Shelbertop**" Buggy that we want you to know about, that we have decided to send it on **30 days' free trial** to responsible parties to test before they buy it. Don't buy the same kind of a buggy your great-grandfather did when you

can get this improved buggy. Your great-grandfather would not have bought the other sort if he could have gotten a "**Shelbertop.**" He bought the best there was in his day. You should do the same now.

Send us your order, or write for catalog describing it, and be sure to ask for terms on which we send them **free for 30 days' road test.**

Write today for Free Catalog.

**30 DAYS
Free Trial
Send No Money
in Advance**



**FOOTS & HUNTER CARRIAGE MFG. CO.,
333 S. Third Street, Terre Haute, Indiana**

Publishers' Department

The Home of Gleanings and of the A B C of Bee Culture



This is the new concrete office building. The front building is constructed of concrete molded blocks; the rear is monolithic concrete. The stock-room, where great rolls of paper for GLEANINGS are taken directly from cars on the B. & O. tracks, is shown at the extreme right. A little further back, with the saw-tooth roof, is the printing department; 100x140 feet are the dimensions of these new buildings, entirely fire-proof.—*White's Class Advertising.*

For over a year now the publishers have been enjoying their new quarters. As previously announced, we moved "across the road" into a new fire-proof office building and saw-tooth printing-house that is modern, not only in design of the building itself, but in the general equipment. The entire structure has nearly 14,000 square feet of floor-space. The walls and floors are of concrete, and strong enough to resist even a San Francisco earthquake, and so designed that a bonfire could be built almost anywhere in the building and allowed to run its course without doing any great damage. Even the private offices have abestos plaster and steel-lath construction.

The general office, the interior of which is shown on another page, occupies the entire front, about 100x30 ft. Private offices are located in either end, while the remaining central portion, about 30x70, is given up to general office work.

"But," you ask, "what is the sawtooth construction?" By reference to some of the engravings the peculiar form of the roof will be seen. On the cutting edges of the teeth, as it were, is placed the skylights facing toward the north. The result is, that at all times there is a pure white light that leaves no shadows; and even in twilight one can see inside of the building almost as well as outside. For the purpose of the "art preservative" this construction of roof and skylight is ideal.

On stepping into the printing-room, as

seen in the large engraving, one is immediately struck with the beautiful soft light; and while the machinery is going galore with its clack and bang, there is no belting nor shafting in sight. Each machine is supplied with an individual electric motor, the power for which is supplied by underground cables that reach back to our power-plant in the main building, some 800 feet away. Considerable new machinery has been added, among which is one of the latest and very best Miehle book and job presses. It has nearly twice the capacity of the old press, which is retained to help out the big fellow. Besides these two book-presses there is another cylinder press and three job presses, and stitchers, folders, book-trimmers, etc.

There are no second stories, for the whole building is practically one floor on one level. Neither are there any basements. The raw stock of paper is put in a fire-proof room provided with automatic self-closing doors on the same level as the printing and publishing room. These vaults or stock-rooms are seen just at the end of the printing-room shown in the large engraving in the center of this journal.

The new building is heated by what is known as the vacuum system of exhaust steam, or the waste product from the main factory of the wood-working shop. So successful is it that it has been carried over to some of the houses in Rootville, also heated by waste steam.

There are 30 employees in the publishing department, and 20 in the office. The vari-

A decorative advertisement for The A.I. Root Company. The design features five oval portraits of men arranged around a central photograph of a large office. The portraits are: A.I. Root (top center, with a long beard), J.T. Calvert (top left), E.R. Root (top right), A.L. Boyden (bottom left), and H.H. Root (bottom right). The central photograph shows a long, well-lit office with many desks and workers. The entire composition is framed by ornate, Art Nouveau-style scrollwork and floral motifs. The text 'THE A.I. ROOT COMPANY' is prominently displayed in the center, above the office photograph. Below the office photograph, the words 'GENERAL OFFICE' are written. The names of the men are written in stylized banners below their respective portraits.

A.I. Root.

THE
A.I. ROOT
COMPANY

J.T. CALVERT

E.R. ROOT

GENERAL
OFFICE

A.L. BOYDEN

H.H. ROOT



One-third of an ordinary issue of GLEANINGS in Uncle Sam's mail-sacks ready to go over to the train. The building in the background is the office.

ous engravings that are here reproduced, together with the large one in the center of the journal, will give one an idea of the busy life in the publishing department of The A. I. Root Co.

Perhaps a few figures may be interesting as showing the amount of work turned out in the house that GLEANINGS built. By consulting our bills for paper we find that we have turned out something like 300,000 lbs. of printed matter this year. This does not include all the subsidiary publications devoted to bees. A single issue of GLEANINGS

weighs, on an average, 7000 lbs. Weigh a regular number and figure out what the circulation is. But this Christmas issue will weigh approximately 14,000 lbs., or at least that will be the rate on which our postage will be figured.

During the last year we have printed 15,000 copies of the A B C and X Y Z of Bee Culture—the entire weight of which runs over 40,000 lbs. Besides these have been numerous small publications on bees with editions ranging from one to five thousand copies.



GLEANINGS IN BEE CULTURE is here illustrated, showing the great growth from 1873 to 1905. The volumes for 1906 and 1907 are even fatter than 1905, counting up to over sixteen hundred pages per volume. A person who is so fortunate as to own a set of these books, 35 in all, has a library on bee culture the like of which is not equaled anywhere.—From *White's Class Advertising*.

**"If goods are wanted quick, send to Pouder."
Established 1889.**

Emerson Hit It.

By the Bee Crank.

"If a man can write a better book, preach a better sermon, or make a better mouse-trap than his neighbor, though he builds his house in the woods, the world will make a beaten path to his door."—*Emerson*.

Emerson was right. He
"hit the nail on the head."

I never have made any mouse-traps, but in the bee-supply business where I belong I've always tried mighty hard to do my work so that the word "better" would fittingly describe it.

The world didn't have to make any path to my door—plenty of paths were already there, connecting me by express and fast freight with everywhere. However, the world is pretty well represented in my clientele. Some bee-man in every corner of the earth has acquired the commendable habit of buying supplies from Pouder.

Best goods, best service, and best prices. These are the advantages I offer.

I carry ready for immediate shipment a full line of Root's goods at Root's prices, and save you time and money in transportation.



Metal-spaced Hoffman Frames, Danzenbaker Hives, Section Honey-boxes, Weed-process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, and other standard supplies.

I allow you 30c a pound in trade for beeswax. Put your

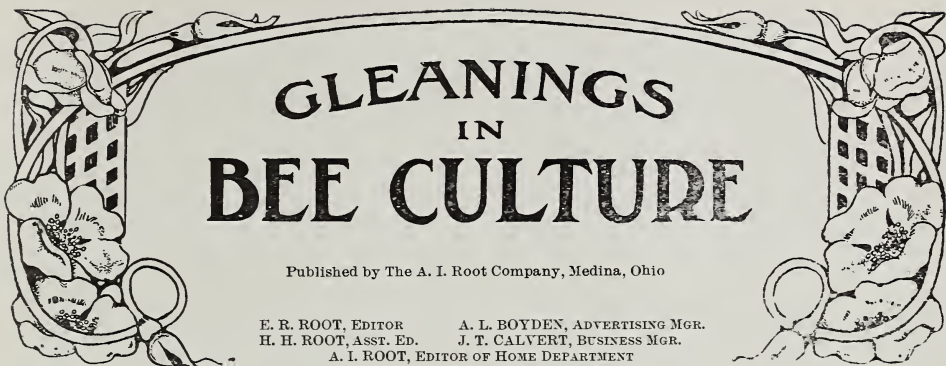
name on package. Large shipments by freight, small ones by express.

Catalog of bee-supplies mailed free.

Finest white-clover extracted honey in five-gallon cans ready for immediate shipment. Write for quotations.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.



Vol. XXXV.

DECEMBER 15, 1907.

No. 24



A. I. ROOT, you are not alone in your estimate of Gov. Hanly. Within a week I've seen his name mentioned as a possible candidate of the Prohibition party for president. If the Republicans would nominate him that might be better.

PROF. COOK, p. 1496, thinks it likely that if eggs of the bee-moth are laid just outside the hive "the wee larva will, as soon as it is hatched, betake itself to the combs." If Prof. Cook said he knew that to be so I'd take his word for it; but as he only says it is likely, I greatly doubt it. Has any one ever seen a young bee-moth larva of its own accord as much as $\frac{1}{4}$ inch distant from its base of supplies?

PLEASE SAY to C. A. Neal that winters are more severe here than with him, but sweet clover is perfectly hardy to stand the winter except on one condition. Have the ground nice and soft, in best condition for most crops, and sweet clover will be sure to winter-kill. Scratch the seed in on ground as hard as the roadside, or roll the ground very, very hard after the seed is in, and it will stand the severest winter.

A. SCHMIDT, *Leipz. Bztg.*, p. 164, says that foundation made in a press, besides having the advantage that it is more readily worked by the bees than mill foundation, does not stretch so much. With mill foundation he had to leave a margin of $\frac{3}{8}$ inch at the side, and still more at the bottom, or there was trouble with buckling. With pressed foundation a margin of $\frac{1}{16}$ inch at the side and less than $\frac{1}{4}$ at the bottom was sufficient. Evidently he is talking about foundation without wires or splints. [All the samples of

press foundation that we have ever seen were much heavier per square foot than that made on rolls. The experiment in question proves nothing *unless* we can have the relative weights of the two kinds of foundation. —Ed.]

BEES FLEW till Nov. 10; then it came cold. When it got down to 11 degrees I was anxious. If they were to have no further flight they ought to go in at once; but would they have a further flight? Happily, Nov. 18 went up to 53, and they had a hilarious time of it. Next two days too warm to carry in; but the 21st they went into the cellar. Although comparatively warm (37 to 42 degrees) they were carried in with open entrances; not a bee stirred except three colonies which had their entrances closed with cloths dripping with cold water.

REV. J. G. DIGGES, editor *Irish Bee Journal*, took a bright way to time the flight of bees. He took three bees from each of three different hives, cycled a mile on a straight road, freed a bee from each of the hives, another trio ten minutes later, and the remaining trio ten minutes later still. Watchers at the hives, with watches set with his, noted the arrival of the bees, which were marked white, red, and green. The bees of A averaged 15 miles an hour; B, 12; C, 20. Other things being equal, C ought to store 33 to 66 per cent more than the others.

G. C. GREINER, in giving that first case of scouts, p. 1507, says, "I watched them all the afternoon and forenoon of next day." Clearly, those scouts were sent out before the swarm issued, unless it hung out over night. I am strongly of the opinion, buttressed by much observation, that bees generally send out scouts before rather than after swarming. It is a very common thing here to see scouts cleaning out empty hives, and I think they often work at it for several days. One set of scouts working in an apple-tree at the Hastings apiary appeared in such numbers that it took some time for us to convince ourselves that a swarm had not entered. On the next visit, a week later, they were still

there. The thing is so common that I had not thought worth to take special notes; but seeing your interest in the matter, Mr. Editor, I may be able to give you some exact figures another summer. [It often happens that what is common knowledge on our own part is not known by the outside world. Of course, we have known for years that scouts are sent out prior to the issuing of the swarm; but it has not been known that they go in such numbers as you observed. We shall be glad to have you take note of any thing further.—Ed.]

I. HOPKINS urges that every producer of extracted honey have a hydrometer, and never put any honey on the market testing less than 1.400—*Australian Bee Bulletin*, 124. Now, that is something definite for you, and the necessary outfit, hydrometer, glass, and thermometer, costs less than \$2.00. [The suggestion was made at the Harrisburg convention that every extracted-honey producer, at all events every bottler of extracted honey, should own a hydrometer, and the same idea has been advanced on other occasions. It is, perhaps, proper that the suggestion be emphasized more forcibly than it has been. In this connection we would say that we should like to get matter from those who have used hydrometers for the purpose of testing the specific gravity of honey, and we should be particularly pleased to have them give their reasons for using them.—Ed.]

IN AMERICA, says Editor Kramer, the important question is, how to prevent swarming. In Switzerland he says it is a solved problem—solved in the only natural way through weeding out swarmy stock. If he means, by that, that that is what *should* be done to attain the desired end, then I may say that some of us are working on the same line here. If he means that they have already reached non-swarming bees, I wish Herr Kramer would tell us the number of colonies in a hundred likely to swarm in his non-swarming stock. If not more than two or three I'd like a queen of that stock, no matter how black. [This question of swarming is very largely a matter of locality. In certain parts of Texas, California, and the West, there is no swarming after the main honey-flow sets in. What swarming there is, takes place at the preliminary flow of honey. Possibly Editor Kramer lives in a locality where there are no preliminary flows, but one heavy one, so there will be very little tendency on the part of the bees to swarm; therefore a little effort to breed out the swarming tendency might make quite a showing.]

Yes, we should be very glad to get one of those queens; but we feel sure her bees would swarm in this country, at least in the white-clover regions of our Northern States, the same as other bees on which an intelligent effort has been made to breed out swarming.—Ed.]

J. L. BYER, *American Bee Journal*, 722, says that, a few years ago, he prepared a number of colonies with paper for winter protection, as recommended in GLEANINGS

for Oct. 1. While the bees packed in the "good old way" came through in grand condition, he says: "Bees in hives covered with paper, in different parts of the yard, nearly all perished, and what were left were mere nuclei in the early spring. All I have heard of in Ontario, who tried the plan, reported somewhat similar results. [This is an interesting and timely report. Perhaps we had better not put too much dependence on paper winter cases; but inasmuch as the experience of ourselves and that of some others is not like that here given, we do not think it would be wise to abandon paper winter-cases just yet; but a mere cap of paper covering a single-wall hive is not a sufficient protection. There should be several folds of newspaper or other packing-material under the paper cap to give the hive the necessary protection. We can see no reason theoretically why such a packing-material, protected from the weather by an oiled or tarred paper, should not give just as good results as the same packing-material surrounded by a wooden case. Doubtless many of our subscribers will be testing this idea to a considerable extent this winter. We shall be glad to have them take notes and report next spring.—Ed.]



MERRY Christmas and a happy New Year!

A CORRESPONDENT asks us to tell him the source of bright-red pollen found in the central part of Pennsylvania. The flora of different localities varies so that it would be impossible for us to guess. Perhaps some one in the vicinity can enlighten our friend.

THE reader's attention is called particularly to a very valuable article by E. D. Townsend, giving the Coveyou method of extracting and bottling honey. We believe our young friend may be able to teach some of the Gamaliels some new tricks of the trade. At all events, we suggest that they sit for a while at his feet.

OUR CHRISTMAS ISSUE.

WE take pride in presenting this issue to our readers. It is not only rich in illustrations but in valuable matter. It will pay any of our readers to lay it aside carefully and keep it for future reading. The article by Mr. Townsend, for example, is worth a year's subscription price; and yet we run across bee-keepers every once in a while who "can not afford to take a bee-paper," and complain that their "bees don't pay."

In the *Bulletin des Sociétés d'Apiculture de la Savoie*, Mr. Ferrier says if you wish to get queens fecundated in a tent the drones must be unrelated to the queens. He says the latter feel an aversion to drones of their own family.

W. K. M.

THE FIGHT IN CONGRESS OVER FOREST RESERVES.

THERE will doubtless be a vigorous fight in this session of Congress over the proposal to create two large forest reserves in the East and South; namely, the White Mountain forest reserve in New England, and the Appalachian forest reserve in the mountain regions of the South. The last named is peculiarly rich in bee-keepers' trees of all kinds, and ought to secure the undivided support of the apiarian interests. When the fight is on we expect to supply our readers with more detailed information. These forest reserves are in most cases bee-reserves as well as forest reserves.

W. K. M.

TWO PROMINENT LADY WRITERS ON BEES.

OUR Italian contemporary, *Corrispondenza Apistica* gives in its August issue a synopsis of Mrs. Comstock's article, "Bee-keeping for Women," which appeared in GLEANINGS some time ago. It speaks very highly of Mrs. Comstock's ability as a bee-keeper. Moreover, the editor is very gallant, for he says it is very evident the gentle Lady Boisford is a very beautiful writer as well as an accomplished bee-keeper. Over in Europe Mrs. Comstock has a rival in Madame Lucie Dennler, wife of the editor of the bee-journal published in Strassburg, the capital city of Alsace and Lorraine. She writes quaint legends about bee-keeping and bee-keepers of other days than ours.

W. K. M.

THE PRODUCTION OF BEET AND CANE SUGAR.

THE production of beet sugar is now equal to that from cane. The total of the world's output of cane sugar for the season of 1906-'7 was 7,146,446 tons. For beet sugar the figures are 7,144,377 tons. The production of cane sugar has risen rapidly of late on account of the liberation of Cuba, which has greatly encouraged the growth of sugarcane. The United States is now the greatest market for cane sugar, while the British Isles are by far the greatest consumer of beet sugar. The Britishers are the greatest consumers of sugar, the consumption per capita being about 10 lbs. higher than in the United States. Many are of the opinion that we eat too much sugar; but what about John Bull and his sweet tooth?

W. K. M.

HONEY BREAD 700 B. C.

ACCORDING to the Parisian bee-journal, *L'Apiculture Nouvelle*, honey-bread was made at least 700 years before the birth of Christ. That's a good while ago. According to Hippocrates, honey and wax were con-

siderably used by the doctors of ancient Greece. At that date fruits were preserved by being immersed in honey. And 4000 years ago, during the reigns of the Pharaohs, the Egyptians had a proverb or saying equivalent to our "veritable hives of industry."

W. K. M.

THE PLURAL-QUEEN SYSTEM.

REPORTS seem to come in thick and fast, going to show that the two queen system, in connection with perforated zinc, is a success. There can be no question but that, under some conditions at least, the scheme of using two queens will increase the worker force, and that will increase the honey crop; but whether it will be practicable to use more than one queen to a colony without having them separated by excluders, we have our doubts. It can be done sometimes under some conditions, no doubt.

MARKETING EARLY, AND BOTTLING HONEY TO RELIEVE A GLUT IN THE MARKET DURING THE HOLIDAYS

WE are firmly of the opinion that more producers of extracted honey should do their own bottling and retailing, rather than glut the great markets at a time of the year when everybody is ready to unload. Unfortunately this year, as every year, there seems to be a tendency on the part of too many beekeepers to send their honey to market in November and December instead of during the months of August and September, when prices generally rule strong.

A CORRECTION.

IN our issue for November 15, in giving our report of the National convention at Harrisburg, page 1430, we unwittingly did our old friend and correspondent, Mr. J. A. Green, an injustice by saying that "no program had been announced, as the secretary, Mr. J. A. Green, owing to pressure of other duties, was unable to get any program ready; but President Aspinwall, during the last week, secured a number of valuable papers," etc. We now learn that Mr. Green had written to all the parties who had prepared papers, and in some cases, at least, had secured their promise to present them to the convention.

PRICES ON HONEY FOR NEXT YEAR.

A CORRESPONDENT asks whether we think the price of honey as it now stands will be as good as or better than now by June, 1908. It is not possible to make any accurate prediction; but we do not see any reason why it should not be just as high if not higher. Should the conditions next spring and early summer be favorable for a good honey flow all over the country, the market might ease up somewhat. Should it, however, be unfavorable, as it was last spring, the prices should be firmer. We are of the opinion that, if the value of other commodities continues to soar, honey will go up; but if there

should be hard times next summer, and every thing should fall in price, honey will necessarily go down with the rest.

ARE BEES REFLEX MACHINES?

WE hope to begin soon the publication of a translation of the paper by Von Buttler-Reepen, a German scientist and practical bee-keeper as well, on the question "Are Bees Reflex Machines?" The matter is all in type, and the first installment will be published as soon as the proofs are O. K'd. While this paper is scientific it is intensely interesting as well as practical, and, as we said before, we are of the opinion it will help to solve many a practical problem that confronts the bee-keeper who is after the dollars and cents as well as the pleasure he can get out of the business.

WHAT TO FEED BEES IN COLD WEATHER.

ALMOST every year, when cold weather comes on, we are asked how to feed bees in mid-winter. We advise giving a comb or combs of sealed stores, as liquid feed in cold weather excites the bees too much. We would not break the cluster to insert this comb, but, rather, lay it flatwise on the top of the brood-nest, separated by a couple of strips of wood $\frac{3}{4}$ or $\frac{1}{2}$ inch thick. Where the brood-nest will not afford sufficient room, an extra story should be put on, and some good warm packing material should be placed over the whole. When combs of sealed stores are not obtainable, wooden pie plates or wooden butter-dishes filled with Good candy may be placed on top of the brood-nest. But do not make the mistake of placing this candy directly on top of the frames, for the heat and moisture of the cluster will cause it to run down, thus killing the colony. Cakes of hard rock candy may be laid on the frames without being placed in any container; but the average person will be able to make his own Good candy by mixing powdered sugar and honey to a stiff dough easier than he can make the hard crystalline rock candy.

THE NEWSPAPERS AND BEE-STING CURES.

THE newspapers are coming to be more or less filled with stories about remarkable bee-sting cures for rheumatism. Some of them are doubtless on the fake order, because they furnish the basis of a "bee story." In times when matter is scarce, reporters seem to find the bee a splendid subject. Formerly they used to tell wonderful stories about the so-called manufactured comb honey; but since it is no longer possible to retail that kind of nonsense and have the public believe it, they are now dealing with more sober facts. But the trouble is, a large class of readers, on account of the sensational way of putting a fact, will be disgusted rather than convinced that there is any merit in the bee-sting poison as a cure for rheumatism. If the truth were stated, it is only in certain cases and under certain conditions where relief is afforded. It is too sweeping a statement to affirm that hypodermic injections of bee-

poison will cure *all* forms of rheumatism; therefore in reading these sensational accounts in the papers we should make due allowance for the desire to make a sensational story regardless of fact.

THE FOUL-BROOD SITUATION IN CANADA.

A LITTLE question arose among some of our subscribers in Canada as to whether the facts were correctly given in our columns in regard to the foul-brood situation in Canada. In order that we might have the exact facts from an official source, we wrote to Mr. N. Monteith, Minister of Agriculture for the Province of Ontario. First, we enquired the number of apiaries that had been examined, and the number in which foul brood had been found. It had been further stated that the inspectors, having exceeded the limit of the funds appropriated by the legislature—namely, \$1200—had been called off, leaving the work unfinished. The following letter from the Minister of Agriculture explains:

Dear Sirs:—I am in receipt of your letter of the 29th ult. in which you ask for a statement of the work performed by the Apiary Inspectors in Ontario during the past season. The expenditure for this work was approximately \$2300, and the details are as follows:

Total visits paid.....	733
" number of apiaries examined.....	663
" hives in apiaries examined.....	14,933
apiaries showing signs of foul brood.....	264

It should be borne in mind that the inspectors were, in almost every case, working in suspected districts, and the relative proportion of infected apiaries should not, therefore, be regarded as applying to the Province as a whole.

The inspection work was continued until about Nov. 1st, after which date, principally on account of the shortage of the horey crop, it was not considered advisable to prolong the work.

N. MONTEITH,
Toronto, Dec. 3. Minister of Agriculture.

A WORD TO THOSE WHO HAVE WATCHED US GROW.

MANY of our readers, especially those who have been with us almost from the very beginning, and have watched us grow, will be glad to read the publisher's statement given on p. 1549 of this issue. We feel that whatever material progress GLEANINGS has made is due very largely to our subscribers who have so kindly furnished us gleanings and heads of grain from many fields. When A. I. Root, the founder of this journal, first started it he had in mind the making of a paper that would be the work of practical men, their fingers possibly daubed with bee-glue while writing on the cover of a bee-hive an article for GLEANINGS. We have tried to encourage and develop just such writers. The fact that the journal has grown from a little quarterly of 16 pages to an illustrated semi-monthly of 60 pages, with an actual circulation of 34,000, shows what has been done in all these years. The editor desires at this time to express his thanks to those of our friends who have taken such an active interest in making the journal what it is.

While A. I. Root has long since retired from the active field of apiculture and apicultural journalism, his influence is felt in a larger and more important way in the department of "Our Homes." It is true, per-

haps, that some of our apicultural readers may not care to read these lay sermons, yet we are of the opinion, judging from the correspondence that is streaming in constantly, that three-fourths of our subscribers consider A. I. Root's work a very important feature of the journal—not because what he has said may have led to material prosperity, but because it has turned their attention to things far more precious than gold or silver, of a kind that fadeeth not away.

BEE-KEEPERS' ASSOCIATIONS IN GERMANY.

HEREWITH we present a table showing the distribution of the bee-keepers in Germany who are members of the Bee-keepers' Association of Germany, Austria, and Hungary. We are indebted to the *Allgemeine Zeitung für Bienenzucht* for these figures. The members outside of Germany proper are not shown; but these would bring the total up to a little over 100,000. The whole territory covered by the association is about as large as the region southeast of the Mississippi and south of the Ohio River, leaving out Florida.

1. Allenstein Association, East Prussia.....	607
2. Baden Association.....	8442
3. Baltic Association.....	1033
4. Brandenburg Association.....	4200
5. Breslau Association, Silesia.....	427
6. Cassel Association.....	585
7. Coburg Association.....	48
8. Gumbinnen Association, East Prussia.....	1600
9. Hannover Association.....	4439
10. Cologne Association.....	135
11. Königsberg Association.....	1400
12. Mecklinburg Association.....	2066
13. Mecklinburg-Strelitz Association.....	295
14. Frankfurt-on-Main Association.....	185
15. Nürnberg Association.....	25
16. Upper Hesse Association.....	930
17. Offenbach Association.....	36
18. Oldenburg Association.....	1200
19. Pomerania Association.....	2874
20. Posen Association.....	1548
21. Hesse-on-Rhine Association.....	599
22. Thuringia Association.....	3100
23. Silesia Association.....	6722
24. Schleswig-Holstein Association.....	5400
25. Schwabstedt Association.....	60
26. Startenburg Association.....	812
27. Thuringia (2) Association.....	2342
28. West Prussia Association.....	3161
29. Wiesbaden Association.....	1100
Total.....	55,311

One of the reasons why bee associations flourish in Europe is because the government gives them aid and encouragement; besides this, the railroads are owned by the state.

W. K. M.

OBJECT TO THE WORD "GLUCOSE."

The following clipping from the *American Grocer* for Dec. 4 so fully explains itself that it is almost unnecessary to make any comment. It is evident, however, that now is the time for every bee-keeper in the United States to register a protest against this stuff being sold as "corn syrup." Glucose is the proper name for glucose, and every bee-keeper who reads this ought to write his Congressman or Prof. H. W. Wiley, at the Department of Agriculture, saying that you want glucose labeled under its true name and no other. While you are about it you might ask other bee-keepers to write, or add

their names to your letter. Here is the quotation:

Any effort of the Department of Agriculture to enforce the use of the term "glucose" in place of "corn syrup" will meet with strenuous opposition at the hands of the National Association of Retail Grocers. Such is the substance of a letter recently sent by Secretary Green, of that organization, to Secretary Wilson. It reads as follows:

HON. JAMES WILSON, SECRETARY OF AGRICULTURE—

Dear Sir:—We have just been advised that Dr. Wiley and his associates have all decided to rule that "corn syrup" is to be labeled under the old "glucose" label. I am authorized by the directors of the National Association of Retail Grocers to communicate at once to you our opposition to this change. The obnoxious word "glucose" will materially injure or interfere with the sale of "corn syrup." If, as we suppose, corn syrup is a healthful product made from corn, then we would ask you to use your influence in leaving it under the brand of "corn syrup" rather than to change to "glucose."

Yours very truly,

JOHN A. GREEN, Sec.

With 350,000 retail grocers in the land it is very doubtful if the above letter in any way voices the opinion of any other than the directors. If glucose is wholesome, prejudice will disappear if it is sold for what it is.

W. K. M.

FASTENING FOUNDATION; NICE WORK FOR WINTER EVENINGS.

EVIDENTLY there are many who think split sections are something new; but Samuel Simmins describes them in his *Modern Bee Farm*, published in 1887. He also supplied very clear illustrations of them, split on the top and sides. Furthermore he says, "Another plan is to make a saw-cut in the one-piece section as shown, and when folded the foundation is readily inserted in such a manner that the most perfect combs are obtained; while for packing to travel long journeys, nothing can excel those worked in this manner." That they are practical is proved by the fact that they have been sold on the English market for twenty years, it being the practice over there to attach the foundation on all four sides, or at least three sides. Sections so fixed can be handled with much greater ease and satisfaction than those having foundation left to dangle from the top-bar of the section box. Some go to the additional trouble of applying melted beeswax with a brush, handling the latter much as a cabinet-joiner handles a glue-brush; but for real satisfactory work, a Van Deusen wax-tube is the best. This is nice work for long winter evenings, and the ladies of the family can lend a hand to advantage. Supers arranged with foundation so firmly attached can be handled without extra care; whereas the hot-plate method results in section supers which have to be handled "gingerly" or the foundation will fall out.

If you have overlooked this method it might be well to look up what Mr. J. E. Hand says on this subject in one of his articles on the Hand system. There can hardly be any doubt that sections with foundation fastened securely on all four sides will result in fewer No. 2 sections and culls.

Some object, saying that it takes too much time to fasten foundation in this manner; but this is largely offset by the fact that the work is done in the dull season, and much careful handling is saved in the busiest season, when time is money.

There are other methods of fastening foundation on all sides. One is to have the sec

tions grooved, and insert the full sheet of foundation while the section is being formed in the section-press. Then the foundation may be further secured with melted beeswax applied with a tube. This may seem quite a lot of trouble to go to; but it saves even more trouble before the season is over. One point is, that it enables the bee-keeper to order his sections early, and employ his spare time in getting ready for the summer campaign.

W. K. M.

THAT GREAT IRRIGATION CONGRESS AT SACRAMENTO, CAL.

WE have received a copy of the *Sacramento Bee* containing an account of the irrigation congress at Sacramento. This edition, of forty large newspaper pages, devoted to the themes of irrigation, forestry, and public lands, is well illustrated, and contains an immense amount of valuable information having to do with the work of reclaiming the arid West, and converting it into a land of fruits, flowers, bees, and peaceful contented homes for toiling millions.

Twenty thousand delegates assembled on the opening day to discuss ways and means of facilitating this great work of land redemption and home creation. In some respects this work is unique. Delegates came from Europe, Asia, Australia, South and Central America to hear and see what America was doing in this work, and to take part in the deliberations.

The convention was in itself a triumph for peace, science, and industrial skill. Nothing was said about war nor about the predatory rich, but every thing hinged on the home—the rural home.

Practically every irrigation project is a bee-keeper's preserve so that the bee-keepers are vitally interested in all that is being done, either by public or private enterprise.

In this connection the issue of the *Sacramento Bee* now before us contains a mass of very valuable information to the home-seeker. It gives the location of all government projects, particulars of the Carey Act, and various other measures by which arid lands are reclaimed and made useful to mankind.

Those of our readers who are interested in this great movement would do well to secure a copy of this irrigation number of the *Sacramento Bee* for Sept. 3. No price is attached, but probably 10 cents would bring it.

W. K. M.

HOW TO MOVE OFF NO. 2 OR UNSALABLE COMB HONEY HAVING A GOOD FLAVOR.

As a general thing it is far easier to sell fancy and No. 1 honey at high prices than No. 2 broken and otherwise inferior-looking comb honey at a low price. It will very often happen that one side of a box of such honey will be fairly presentable while the other is damaged and leaking. A No. 2 section in a section-box somehow looks "off."

At our retail store here in Medina we put all such honey in wooden butter-dishes, first cutting it out of the sections. The best side of the comb is put uppermost, not to

deceive, but, rather, to make the honey show to its full advantage. Very often a bad-looking box will contain very fine-eating honey. If we can so show off this honey that its real quality comes to the front, we are not deceiving or misrepresenting by putting the good side out; we are only telling the truth about it, that it is as good to eat as the best.

But there is something more about these butter-dishes of honey—the leakage around the under side, close to the side of the comb, is one important element in effecting a sale, for the comb appears to be floating in its crystalline sweetness. It is, therefore, suggestive of the good old days on the farm of precious memory, when chunks of comb were floating in honey. How the very sight of such honey made the mouth water! No small wonder that it does it again.

Our retailer "over across the road" says that often No. 2 honey will sell readily if the combs are cut out of the sections and put in butter-dishes; while if left in their original containers they will have a slow sale. And here is another point—No. 2 comb honey is very often No. 2 because the sections are badly travel-stained, or daubed with propolis. Remove the cause of its disqualification and it becomes No. 1.

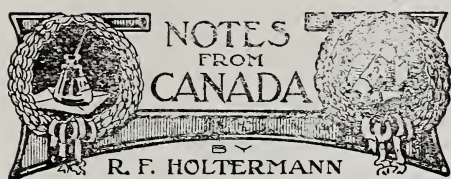
We suggest that you ask your grocer to try the experiment of setting out about a dozen butter-dishes, each containing a section of your left-over No. 2 honey with the liquid article surrounding it. Watch the result, and report to us how they sell.

Of course a large wholesaler could not fuss with any thing of this kind; but the retailer may be able, by means of butter-dishes, to clean up a lot of old slow-selling stuff. If you have customers come to the house or bee-yard, set before them butter-dishes of your "off" looking but good-eating honey. With only a cent's difference in price between this and your No. 1 you will be able to move off all of your otherwise bad-looking but good-eating honey.

PARCELS POST.

THE various accounts of the assembling of Congress agree in stating that there is little hope for action on the matter of parcels post at the present session. The representatives of the people seem afraid to act because half of them will go before the people for reelection next year, and powerful opposition has been engendered by the country merchants.

For years the express companies have foreseen that, sooner or later, an attempt would be made to inaugurate a parcels post, and they spent money freely in creating an antagonism to the idea. Curiously enough, they have succeeded in influencing the very class who have been most hurt by the express companies—the country storekeepers. The express people have done all they could to foster mail-order houses, and yet the local merchant rushes to their assistance. This agitation resembles the opposition to railways in early days, also to the bicycle, the steamer, the automobile, and other great benefits. Write your Congressman. W. K. M.



ONTARIO BEE-KEEPERS' CONVENTION.

The history of the O. B. K. A. during the past year has been one of progress. Its membership has been increased, its influence is greater, its ideas have been more progressive, and its aims and purposes for the future are more along the lines of agricultural societies which have advanced in their methods of production and marketing.

Outwardly, at least, the action of its members has been harmonious, and there is very strong evidence that personal interests have been sunk for the welfare of the body at large. If any Canadian readers of *GLEANINGS* are not members of the Ontario Bee-keepers' Association I would urge them to send their membership fee of one dollar per annum to the Secretary, Mr. T. W. Hodgetts, Department of Agriculture, Toronto.

The Vice-president, F. J. Miller, London, Ont., opened the late Toronto Convention, Nov. 13. In his opening address he spoke of the past two unfavorable years, and the great decrease of colonies of bees; of the much greater prevalence of foul brood in the province than members had been led to believe; yet out of it all he thought good would come.

Second Vice-president, Wm. Couse, Streetsville, Ont., in his remarks mentioned the very great development known to him and many others in the production and demand for fruits. He felt that the increased production and demand for honey might be equally great. Honey had even a greater advantage than fruit, as it will not spoil as readily as fruit, and can pass through the various stages of marketing with less risk of loss.

W. A. Chrysler, Chatham, Ont., in his address entitled the "Distribution of Honey," appeared to strike a responsive chord when he advocated coöperation in marketing honey. He advocated selling at fair prices in the local market, and then coöperating in selling in distant markets.

R. F. Holtermann stated that a label and seal upon a package guaranteeing purity and prime quality would get the preference in the market over the individual product. A committee consisting of Mr. Chrysler and the executive of the Ontario Bee-keepers' Association was appointed which shall formulate a scheme to be given to county associations by the spring, with the idea that county associations rather than the large Ontario association shall do the coöperative marketing.

E. W. Alexander, Delanson, N. Y., sent a paper advocating keeping the brood-chamber of the hive clear of capped honey by extract-

ing during the late spring and early summer, giving the queen greater room to lay.

A pretty lively time followed, showing that all were opposed to extracting from combs containing brood. Some, however, favored extracting any combs with only honey in about fruit bloom time. Many thought it unwise to feed honey back to the bees; some opposed stimulative feeding—among them Jas. Armstrong and H. G. Sibbald. Those favorable—McEvoy, Dickinson, and Holtermann.

Mr. Robinson, in reply to a question, gave as the best method for cleaning pollen-clogged combs to soak the combs in water for twelve days and then extract.

Miss M. Trevarrow, Meadowvale, Ont., under the subject "Foul Brood," advocated as a preventive the frequent changing of combs. With the present excellent methods of rendering wax this can be done at a profit. Keep strong colonies, feed only sugar syrup to the bees, and never feed back honey, and have colonies open for easy inspection. She stated that, during the past year, 660 apiaries had been inspected; of these, 396 apiaries had been found free from disease, and 264 diseased.

The reports of the six inspectors and the Secretary, which followed, confirmed Miss Trevarrow's work. The inspectors were also unanimous in their statement that about 75 per cent of the bees in Ontario had perished from one cause and another during the last year or two.

J. L. Byer reported having had to deal with a genuine case of European foul brood, and he stated that it was very dangerous. Mr. S. D. House, New York, made the assertion that, from various remarks made since he had come to the convention, he believed that there were more cases of European foul brood in Ontario.

Jas. Armstrong, Cheapside, who had visited not only every suspected apiary but every apiary in a large area, found, out of 212 apiaries, that 103 were diseased. He advocated a law that no one in Ontario should, under existing conditions, be allowed to have the old box hive.

While, earlier in the season, some inspectors had found two-thirds of the apiaries diseased, fortunately the later records had been more favorable; but members expressed surprise that so much disease had been found by the inspectors.

A vote of thanks was unanimously passed, thanking Hon. Nelson Monteith, Minister of Agriculture, for his kindness and yet justice in dealing with the stamping-out of the disease. The sum of \$2285 had been expended during the past year, and even then the demand for inspection had not been satisfied, and much more required to be done.

S. D. House, Camillus, N. Y., gave an address which created a great deal of interest. His address, "Comb-honey Production," will be dealt with at a later date. I understand that Mr. House was besieged by individual bee-keepers until the early hours next day. I suppose this was the reward for well doing.

Arthur Laing, St. Thomas, as pointers of the "Production of Exhibition Honey," mentioned clean fresh combs, a well-crowded hive, and well-ripened honey.

Prof. H. A. Surface gave an interesting and much-appreciated address along the lines given at the late National. Resolutions were passed, asking for a more stringent enforcement of the pure-food law, and that such terms as "Pure Maple Syrup Mixture," "Pure Honey Mixture," etc., be prohibited, as it was intended to veil adulteration. A resolution was also passed, asking that demonstrations in bee-keeping and honey production, also showing forth the natural history of the bee at leading exhibitions, be encouraged and asked for. Also that the various governments in their capacities be asked to give the same help and encouragement to bee-keeping that other branches of agriculture were receiving.

There has been an increase of 115 in the membership during the past year. Some other features of the Ontario convention will be given later.

Brantford, Canada.



SELECTING A LOCATION FOR AN APIARY.

There are several points to consider when locating out-apiaries; but I have had no trouble in locating my present number of fourteen, besides getting locations for ten more apiaries which will be put in next spring.

The prerequisite with me is sufficient honey-yielding flora to warrant locating an apiary in a locality, as it is my sole purpose to produce as much honey as possible. The best location without the honey-producing flora would not profit me any thing.

Permanent water is the next important item. The bees need a goodly supply of it at all times, and during heavy brood-rearing the lack of it would most certainly show in the crop of honey secured. Besides, if water is not supplied for the bees, endless trouble often results from their going to neighboring watering-places, which can not be tolerated.

Shade is of great importance here in the South, especially — not only for the bees but for the bee-keeper as well; hence I prefer natural shade; and a grove of mesquite trees which give a partial shade in the summer and drop their leaves in the fall is my preference, as these are most abundant here. There are many other trees suitable, however. I also prefer a slight slope of ground toward the southeast, facing the hives in this same direction, so that the noon sun strikes the hives diagonally from the upper corner of the front of the hive. The facing of the

hive, however, has nothing to do with the honey stored, nor does it make a difference with the colonies.

Outyards are generally located in some owner's pasture, just far enough from his home so that the bees may be seen occasionally, but not near enough so that stinging bees may cause trouble. It is preferred to have a wire fence around the yard to prevent trouble from stock. Such locations cost me from five to ten dollars, according to the season. Five dollars in money is paid annually to the owner for the privilege of leaving the bees on the location, and a quantity of honey for his family is given him at each robbing time, more or less if a good or bad year.

THE USE OF FOUNDATION.

I have just received the following, which will explain itself:

The saving to bees in time through the use of foundation is of first importance to the practical bee-man who keeps bees for the money there is in the business, and who looks to the best interest of his trade. The "lucky-go-easy man" who thinks it expensive to use foundation is usually the man who comes up at the end of the season with a lean pail of honey, and whose customers are often found wanting. I have used it ever since I have had bees; and find it to my interest, many times over, to use it. It is often claimed that it is a slow tedious job to put it into the frames. This is the case, without a doubt, unless a person is fixed for it and acquires some skill in putting it in. I must say that I am no adept at this art, but Mrs. Robinson is, and can put in foundation in a whirl. I do not wish the bee-folks to think I am lazy, and that my better half is making the living, when I say that Mrs. R. puts all my foundation into the frames. We use a Vandusen wax-tube in the work; so, to redeem myself, I must make known the fact that I bring supers of empty frames, take away the full ones, imbed the wire, keep the wax warmed to the right heat, keep foundation handy, etc. You may think this is an easy job for me to do while Mrs. R. puts in the foundation. It isn't so easy when she puts in 120 Hoffman frames per hour, or two per minute. She can do this all day long, and put in some 1200 sheets of full-size brood foundation. To make the matter of more importance, she much enjoys the work.

The man who has a hundred or so of colonies of bees can at the present day get his foundation reasonably cheap if he will send his wax to a foundation-manufacturer and have it made into foundation. The beauty of having good nice straight combs to manipulate, and a scarcity of drone combs, is an item of the gravest importance to me.

Bartlett, Texas, Oct. 28.

T. P. ROBINSON.

The above is quite a good record for a woman. Instead of the wax-tube we use a spoon which has had its sides pressed together to form a deep narrow bowl with a long-pointed lip from which to let the wax flow into the frames. Faster work can be done with it, and there is no trouble about the wax hardening in it and clogging of tubes.

For holding the frames a wide board three feet long is set slanting upright against some object. On this board are cleats slanting across it upon which the frames are set. There are three such about an inch further apart than the depth of the frame used. Just above each cleat is nailed a wide board just the size of the inside of the frame and half the thickness of the top-bar. This is a gauge to guide the foundation to the middle of the top-bar.

There being three sets of cleats one frame is set on to the upper one, a sheet of foundation laid against the gauge, and slipped down on

to the top-bar. A spoonful of wax poured along the slanting trough thus formed will fasten it. This frame is now left to cool while the other two frames are filled in the same manner. Then the first is removed, another filled in its place, and so on with the next ones. In this way no time is lost waiting for the wax to cool, which it does slowly in hot weather.

AWARDS AT SAN ANTONIO INTERNATIONAL FAIR.

This year's display has attracted great attention from nearly every visitor to the fair. The observatory hives have been a source of constant interest, not only to the experienced bee-keepers, but also to the curious uninitiated.

W. H. Laws and D. C. Milam were the judges who passed upon the merits of the exhibits in the bee and honey department. The number of exhibitors and exhibits this year is the largest and most varied since the fair was instituted, and as a result the judges had hard work in making their awards.

The following awards were made:

Golden Italian bees and queen in single-comb observatory hives; first, John W. Pharr, Berclair; second, Grant Anderson, Sabinal.

Three-banded Italian bees and queen in single-comb observatory hive; first, W. O. Victor, Hondo; second, Udo and Max Toepperwein, San Antonio.

Carniolan bees and queen in single-comb observatory hives; first, Grant Anderson; second, Udo and Max Toepperwein.

Caucasian bees and queens in single-comb observatory hives; first, Southwestern Bee Company, San Antonio; second, Udo and Max Toepperwein.

Cyprian bees and queens in single-comb observatory hives; first, Udo and Max Toepperwein.

Holy Land bees and queens in single-comb observatory hives; first, Udo and Max Toepperwein; second, Southwestern Bee Company.

Banat bees and queen in single-comb observatory hives; first, Grant Anderson; second, Udo and Max Toepperwein.

Black queen and bees in single-comb observatory hives; first, Southwestern Bee Company.

Best display of bumble-bees; first, F. L. Aten, Round Rock.

Best and largest display of bees of various races in observatory hives; first, Southwestern Bee Company; second, Udo and Max Toepperwein.

Best and largest display of queens of various races in mailing-cages; first, Southwestern Bee Company; second, John W. Pharr.

Best case of white section comb honey, twelve pounds or more; first, W. O. Victor; second, Wald C. Conrads, New Braunfels.

Best case of light-amber section comb honey; first, Southwestern Bee Company; second, W. O. Victor.

Best and largest display of section comb honey; first, W. O. Victor; second, Udo and Max Toepperwein.

Best display of special designs of comb honey; first, Udo and Max Toepperwein; second, Frank Kraut, Leon Springs.

Best twelve pounds friction-top pails white bulk comb honey; first, L. H. Scholl, New Braunfels; second, L. Jones, Uvalde.

Best six pounds friction-top pail white bulk comb honey; first, L. H. Scholl; second, L. Jones.

Best three pounds friction-top pail white bulk comb honey; first, J. W. Pharr; second, L. H. Scholl.

Best display of bulk comb honey; first, L. H. Scholl, both prizes.

Best dozen jars white extracted honey; first, Southwestern Bee Co.; second, Udo and Max Toepperwein.

Best dozen jars light-amber extracted honey; first, Otto Suetenfuss; second, Southwestern Bee Co.

Best display extracted honey, granulated form; first, W. O. Victor; second, L. H. Scholl.

Best sample cake of bright yellow beeswax, not less than two pounds; first, A. Fourmer; second, L. C. Rousseau, Waxahatchee.

Best and largest display of beeswax; first, L. H. Scholl; second, Udo and Max Toepperwein.

Best display in special designs in beeswax; first, Southwestern Bee Company; second, L. H. Scholl.

Best display of fruit preserved in honey; first, Southwestern Bee Company, both prizes.

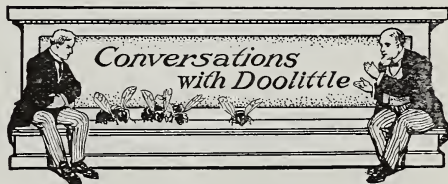
Best honey vinegar; first, Moritz Rompel, Bulverde; second, Southwestern Bee Company.

Best instructive display in apian products and of the various uses made of honey and beeswax; first, Louis H. Scholl; second, Southwestern Bee Company.

Best and largest display of bee-keepers' supplies; first diploma to Southwestern Bee Company.

Best collection of Texas honey-yielding plants, pressed and mounted; first, L. H. Scholl; second, Miss Meta Hilje, Alvin, Texas.

It is already planned to have a still larger show of bee-keepers' products at this fair as well as at the State Fair at Dallas next year, and we hope that our bee-keepers will keep this in mind and save every thing worthy for these exhibits. Such exhibits are advertising our industry.



BEE-KEEPING AS AN AVOCATION.

"Say, Doolittle, I want a little talk with you about turning my whole attention to apiculture. In other words, I want to make bee-keeping an avocation."

"But you have got several colonies of bees at the present time, have you not?"

"Yes, I worked 31 colonies last summer, but I wish to get enough so as to let all other things go—enough to make a business of bee-keeping—in other words, an avocation."

"But you have got the wrong word in *avocation*, have you not?"

"No. *Avocation* means that which you make a business of, does it not?"

"Well, that is not my understanding of the matter; but perhaps I may be wrong."

"I think you are. Have you a dictionary?"

"Yes. Here is the Student's Standard."

"*Avocation*. '1. An irregular occupation; side interests; diversion.' That looks as if I had made a mistake. But, hold on; here is under 2. 'One's business or vocation.' There, what do you say now?"

"I say, read the rest of the sentence."

"A common but improper usage.' I give it up."

"Now, turn to *vocation* and see what you find there."

"*Vocation*. Any occupation for which one qualifies himself, or to which one devotes his time; a calling; a business."

"Then the word you wish to use is *vocation*."

"Yes, it would seem so. What do you think of my making a business of bee-keeping? is what I want to ask you. I wish to drop the chicken business. My team work,

and the like, and turn my whole attention to bee-keeping. Do you think one could make a success in that way?"

"Have you a thorough knowledge of your location?"

"Fairly so. But what has that to do with my success?"

"Quite a little, I should judge. What would you expect if a man told you he was going to spend his whole time catching fish for market, and then settled down by Donavan's pond to carry out his chosen vocation where there are only minnows from one to four inches long? or if he should take up the growing of corn on Ripley Hill, where it is so cold that only flax can thrive? Such would only parallel your success in bee-keeping in a location where little or no honey is to be had. Of course, you *must have* a location that is fairly well adapted to your business if you are to make the production of honey your vocation."

"I guess you are right there. Perhaps I have not given this part of the matter the attention I should. However, I think my location will warrant the keeping of 300 to 400 colonies."

"Well, if it will you have a good one. But even with a good location you might not succeed in producing honey from your 400 colonies so as to make the business a success any more than the man down at Donavan's pond could make a success at the vocation of producing fish for market if that pond were full of trout or bass."

"What are you aiming at now? Couldn't the man catch the trout or black bass?"

"Not unless he knew how to catch trout or bass. He might catch bullheads or minnows by sitting on the bank right in plain sight, and throwing in his hook baited with worms; but if that were all he knew of the business of fishing, his chosen vocation would never give him success in a market which called for only trout and bass. So you might secure some honey from your 31 colonies of bees, and think you were having success when you added what came from the bees with that from your chickens, teaming, etc.; but unless you understand the bee business sufficiently to be a success with 400 colonies, my advice would be to hold on to the others for a year or two till your knowledge of your location and the working of the bees would enable you to become a success at bee-keeping as a vocation. It is no uncommon thing to find men who fail in all callings in life, because they enter into these callings before they are skilled in the little kinks and minutæ which enter into the great whole which is needed to make a success; and I want to impress on your mind that, to make a full success at bee-keeping as a vocation, it requires fully as much skill and general knowledge of the pursuit as do any of the other callings of life."

"Well, I am glad of this talk, for I had not thought as deeply on the subject before; and I guess it will be better for me to go a little slower than I had thought to do, holding on to my other issues till the bees gain

in numbers, and my knowledge accordingly. But you would advise me to increase the bees year by year till I reach the 400 or 600 I had intended to start with next spring, would you not?"

"Yes, if you think the bee business is to be the vocation for you as soon as you can master it. But there is another thought I wish you to carry away with you when you go."

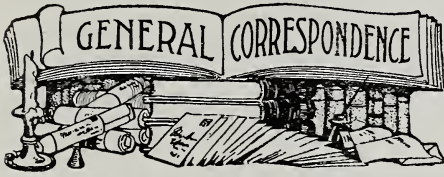
"What is that?"

"Can you hold out under discouraging circumstances? I do not wish you to answer this question right here and now, but I do want you to consider this part of the matter before you fully enter into your project. The farmer, the poultry-keeper, or the merchant, has his poor years when it almost seems that one can not live at his business, or when, to put it in the homely phrase we often hear, they all almost or quite fail to make both ends meet, and the same is true with bee-keeping. If such a turn of affairs would discourage you, after you have your 400 or 600 colonies, and two or three poor years cause you to give up the whole thing in disgust, my advice would be for you to keep on as you are, for it rarely occurs that a person keeping a few bees, a small poultry-yard, a small dairy, does some team work, and catches a few fish for market, will meet with the same extremes as will the man who has his eggs all in one basket."

"Ah! there is a thought there, surely."

"Yes. But persistency generally wins; and if you will stick to any vocation in life, any thing which is a pleasure to work at, rather than a drudgery, or something you work at, not for the dollars and cents there are in it, but for the *love* you have for the vocation, success is almost sure to crown your efforts. The one who sees nothing but the money a thing will bring, or the one who is easily discouraged, seldom accomplishes much. When you look at any business from the point of the *love* you have for it, and take a broad and wide view of the matter, you will see that *any* business is profitable. Look at those barren hills over yonder! You and I see nothing to love in them. The miner comes along and turns those hills, through his love for such things, into a very paradise, not only to himself, but gives something to brighten and cheer the world, for he brings out of those hills something the world can love and appreciate. Just so with the bee-keeper who loves the bees, and through such a love brings out honey from them to sweeten and enrich the lives of others who appreciate that best of all sweets, *honey*. I know it is true that some lines of business pay better than others; but all are profitable to the one who loves them and persists till profit comes from them. The thought I wish you to take with you especially is this: It is the *man* behind the business who makes the business profitable; and it is the *love for the business* which is behind the man that enables him to endure reverses and hold out until success is attained. Now, if you can put on this coat, start out for your 400 to 600 colonies and

bee-keeping as your *vocation*; but if you can not put on the coat, better stay where you are with your 31 to 50 colonies as a side issue, together with your chickens and teaming, or use bee-keeping as an avocation."



CONSUMPTION OF WINTER STORES.

A Study of the Conditions Governing the Amounts of Honey Used by Various Colonies During the Winter; Some Outdoor Colonies that Consumed but a Small Amount of Stores.

BY ALLEN LATHAM.

How many bee-keepers know by actual trial how much their colonies consume of winter stores in the four months of inactivity? For one I had allowed the matter to rest upon guesswork till I had kept bees over twenty years. But during the fall of 1905 I determined to find out the actual truth, not that one season will tell the story of all seasons, but that I might have at least some data upon which I could rely. So I weighed thirty colonies December 1, 1905, and on April 2, 1906. These four months are the actual months of confinement in this locality, since the bees have frequent flights well up to the close of November, and by April 1st are starting in to breed, again being able to fly every few days.

These data will not, of course, cover the six weeks of consumption of stores immediately subsequent to the last fall gathering, nor do they bring into account the great drain upon the stores by the early brood-rearing previous to the first honey-flows of spring.

The table given shows the actual weights of these colonies before and after.

Permit me to call your attention to certain details in this table. It will be noticed at once how frequently the loss in weight approximates 7 pounds, and the actual average is a little under 8 for the 30 colonies. The time being four months, it follows that, under the conditions to which my apiary is subjected, an average colony consumes about 2 pounds of honey per month during the quiescent period.

Numbers 2 and 12 consumed 10 pounds or over, while several consumed 9 pounds. I believe that, in every case of large consumption, it was a strong colony, or else a colony which had started to breed strongly before April 1. No. 12 was an especially strong colony, yet there were instances of strong colonies which came under the average.

These were quiet colonies which did not breed till the warmth of April brought new pollen.

Numbers 6 and 17 are noteworthy. Each of these was a weak colony, and had its entrance much diminished. Thus weakness in numbers and smallness of entrance economize on stores—on stores, I say, not on the balance-sheet.

No. 20 offers a most abnormal loss—one pound only. This colony took upon itself the robbing-out of a nucleus during the last week in March, and so actually came out in April with as much honey as it had in the fall; for at the time of the weighing it was strong in brood and young bees.

Lest some may be puzzled at the large weight of my hives right through, I will state that these colonies were all in my air-spaced double-walled hives with paroid covering.

The chief motive that prompted me to go to the trouble of weighing my hives thus was the frequent statements in our bee-papers to the effect that out-of-door wintering and large entrances were very costly in stores. I was wondering how much I lost by wintering my bees as I do. I have even seen it stated that colonies consumed 17 pounds of stores outside against 8 inside.

Number of Colony.	Weight in Fall.	Weight in Spring.	Loss of Weight.
1	69.5	64	5.5
2	81.5	71.5	10
3	79	72	7
4	84	76	8
5	82	75.5	6.5
6	82	78	4
7	82	74.5	7.5
8	79.5	70.5	9
9	80	73.5	6.5
10	80	73	7
11	85	77.5	7.5
12	85	74.5	10.5
13	81.5	72	9.5
14	79	69.5	9.5
15	86	77	9
16	84.5	77.5	7
17	77.5	73	4.5
18	81.5	74	7.5
19	86.5	77.5	9
20	78.5	77.5	1
21	86	78	8
22	82	75	7
23	83.5	77.5	6
24	81	74	7
25	77.5	68	9.5
26	88	80.5	7.5
27	80.5	72	8.5
28	84.5	77	7.5
29	86.5	77	9.5
30	94	84.5	9.5

These 30 colonies, with the exception of 6 and 17, were all with full entrances—one inch deep by the width of the hive, 13 inches—entrances offering 13 square inches of open doorway. It will be seen that, in spite of these large entrances, and in spite of the out-of-door wintering, these colonies consumed an average of less than 8 pounds in the four months of December, January, February, and March. It is almost fair to say that out-of-door wintering and cellar-wintering are on a par with the first of December, and after the first of April, at least here. In this locality we put our colonies into the cellar about November 26 and take them out the last week in March, rarely later than April 1.

It is not my purpose in writing this article to persuade others to adopt my methods of wintering, but, rather, to show that out-of-door wintering need not be expensive so far as winter stores are concerned. In my case I can not say that I should save enough and more in stores by cellaring my bees to pay for the labor of setting them in and out of the cellar.

It is obvious to me that I save by leaving the bees out; and I absolutely know that I save in bee-mortality by my method of wintering. My out colonies get through the spring with less dwindling than do the cellar colonies. I am not yet sure that this strength of my bees is due to the plentiful supply of air or to some other cause. I use large entrances more to save moldiness and dampness in the hive, thus ensuring rapid building-up in spring, than I do for the health of the bees. Still I have a strong impression that bees wintered with a plentiful supply of fresh air (not exposed to drafts) are more vigorous than are those wintered in the damp close atmosphere of a hive with a small entrance. The small entrance with ample space under the frames, thus ensuring a free circulation, goes far to produce the same effect as a large entrance. It is the small entrance combined with frames coming down close to the bottom-board which causes winter losses.

Another lesson the experiment taught was this: Quiet colonies consume less stores in winter (and, we might add as a corollary, that they do the same all the time) than do restless colonies. It pays, therefore, to keep quiet bees—bees which store honey all right, but which do not waste it in riotous living. No. 2 in the list above was a restless colony right through the winter, and owed its large consumption of stores to this fact rather than to early breeding. Numbers 12, 29, and 30 were especially good early breeders, filling the hives with brood before the close of April. No. 12 filled about 130 sections that season. If No. 2 did good work in the sections it has wholly escaped my memory.

Norwich, Conn., Nov. 5.

[By consulting the map we find that Norwich is only some twelve or fifteen miles from Long Island Sound. Long Island and this region generally has the reputation of being comparatively mild. Besides, it necessarily has a humid atmosphere with more or less fog, and this might make it necessary to use a wide deep entrance.

Speaking about the size of entrances, we have tried time and again in our locality an entrance one inch deep by the width of the hive, and the loss in bees and stores is almost invariably excessive. We were forced to reduce the entrance to $\frac{3}{4}$ x 8 inches maximum; then the mortality was noticeably decreased. In the average locality where bees are wintered outdoors we believe it would be a serious mistake to have an entrance one inch deep by the width of the hive; and we are of the opinion that our correspondent even in his locality could make a better showing if he would try half of his colonies next winter

with an entrance $\frac{3}{4}$ x 8, and the other half full size. But it should be remembered that whenever an entrance is reduced it must be kept clear of dead bees.

The data furnished by our correspondent are very interesting and valuable, and we should be glad to hear from others who have any thing to offer on this subject.—Ed.]

COLOR OF HEARTSEASE HONEY.

A Report to Show that it is Always Amber.

BY G. T. WILLIS.

On page 1428, Dr. C. C. Miller says, "But this year a large part of the my surplus was other than white clover, sweet clover, or cucumber. It was whiter than either. I think it was from heartsease." In your footnote you ask, "Is there anybody else among our subscribers who is able to report beyond doubt that heartsease honey may be light-colored? We are of the opinion that there have been reports to that effect."

Now, let me say that, if any one has ever made any such report, he is surely mistaken unless it can be shown that heartsease will yield some years white honey. And I can positively assert that, in this locality at least, heartsease honey is always of an amber or golden color. About 25 years ago white clover bloomed very abundantly here; but on account of excessive rains while it was in bloom I got no surplus; but in August and September following, the heartsease came on in abundance all over the cornfields and uncultivated places, and yielded the largest surplus I ever obtained from any source. That year, from 7 colonies, spring count, I increased to 21, and from heartsease I extracted between 1200 and 1500 pounds of amber honey. I am certain of this, because there was no other source from which the bees could gather honey. This season I got very little from white clover; a better yield from sweet clover; and later, when the sweet clover was comb honey, and after the sweet clover ceased to yield, the heartsease came on in abundance, and from this source I received about as large a yield as I did from the sweet clover of an amber or light golden color, and of a good flavor, and it sells readily in this market.

Hoopeston, Ill.

HEARTSEASE HONEY WHITE.

You can tell Dr. Miller that he is right about heartsease or smartweed honey being white with a slightly pinkish tinge. Spanish needle generally grows where heartsease abounds, and it comes into bloom just before heartsease begins to fail, and it is what gives heartsease honey the amber color that makes most persons think heartsease honey is amber in color, as it generally is on account of the mixture. You can depend on this, for I have extracted tons of both kinds in the past.

E. T. FLANAGAN.

Belleville, Ill., Nov. 29.

BEE-KEEPING IN CALIFORNIA.

M. H. Mendleson and his Apiaries; Power-driven Extractors; Melting up the Capings as Fast as they are Shaved off the Combs.

BY E. R. ROOT.

During the last few months I have adopted in these columns the plural pronoun *we*, for the very reason that often, after talking with my associates, I give a composite view of our whole staff; but for the purpose of this article I propose to go back to the singular pronoun *I*.

It was in 1901, along about the middle of June, that I bunked with Mr. M. H. Mendleson in his ranch house in Rattlesnake Can-

get some first-handed California experience in extracting honey in a wholesale way. He was delighted with the proposition, because, he explained with a twinkle, there were some things he wished to impress on a certain editor in Ohio which he could not very well do on the written page. Yes, he would put me at turning the crank of a Root Company's six-frame extractor; that would be nice *easy* work. "Oh, yes!" I said, "I shall be very glad to do that. A little exercise will do me good." But I little realized then that there was "method in his madness." My hands were tender; and if ever in my life I was impressed with the fact that I *was* a "tenderfoot" I knew it then. I turned the crank while the sweat poured off my brow. The boys also appeared to be in league with the boss, for they piled the combs on to me at a



FIG. 1.—APIARY OF M. H. MENDLESON.

yon, located some twenty odd miles from Los Angeles, in one of the most picturesque spots in all California. I regret that no photo, nor painting either, for that matter, can give a correct idea of the various tints of the mountains towering up to great heights from all sides. But I took one picture (see Fig. 1) and the same has appeared in several editions of the *A B C of Bee Culture*, and as here reproduced it gives one a faint idea of the beauties of this mountain scenery.

When I called on Mr. Mendleson, I said that I desired to spend several days with him, and that, if he were short of help, as, fortunately, he was, I should like to turn in and

hot pace. I had agreed that, with an extractor of our own make, I could extract the combs as fast as they could be uncapped. But how bitterly did I repent of my bargain! But I would not give up, and at the end of half a day I was ready to sit down to a dinner of bacon, eggs, and fried potato that Mr. Mendleson served up for us. Say—did any thing else ever taste half so good? That mountain air, the exercise, were a wonderful bracer.

I saw the game on the part of Mr. Mendleson and his boys was to impress on me the fact that a six-frame extractor was too large for man power, and that we ought to get up

something that would have to be driven by steam. Well, after I had been put through the "mill" for another hour or two I promised to develop the idea when I arrived home.

Some days later I called on Mr. J. F. McIntyre and saw how easily he propelled his extractor with a little water-motor, and this made me the more anxious to develop the idea. But it took longer than I supposed; and Mr. Mendleson, becoming impatient at the delay, finally worked out a scheme of his own, using a gasoline-engine with an overhead countershaft, etc.

His arrangement will be seen in the large engraving (Fig. 3) showing the interior of the extracting-house. I judge from what I can see that he uses a water-cooled gasoline-engine to drive an eight-frame extractor. With this outfit he is able, doubtless, to dispense with the services of one man, and I am

impossible to do the work of uncapping when I was there had it not been for heating the knives in hot water; for the sage honey which he was then extracting was very thick.

Just back of the knife-heater, to the right of the extractor (Fig. 3), is a large galvanized uncapping-box. Without going into details I may state that this outfit not only receives the cappings but melts them up as fast as they drop down, the wax and honey running out together. At the end of a day's extracting, there will be no accumulation of cappings, but a layer of wax and a layer of honey. Just how Mr. Mendleson melts these cappings I am not at liberty to divulge just now; but I may state in this connection that two or three California bee-keepers have been working on a similar plan. One or two have applied for patents. Just who will secure Uncle Sam's protection it is hard just now

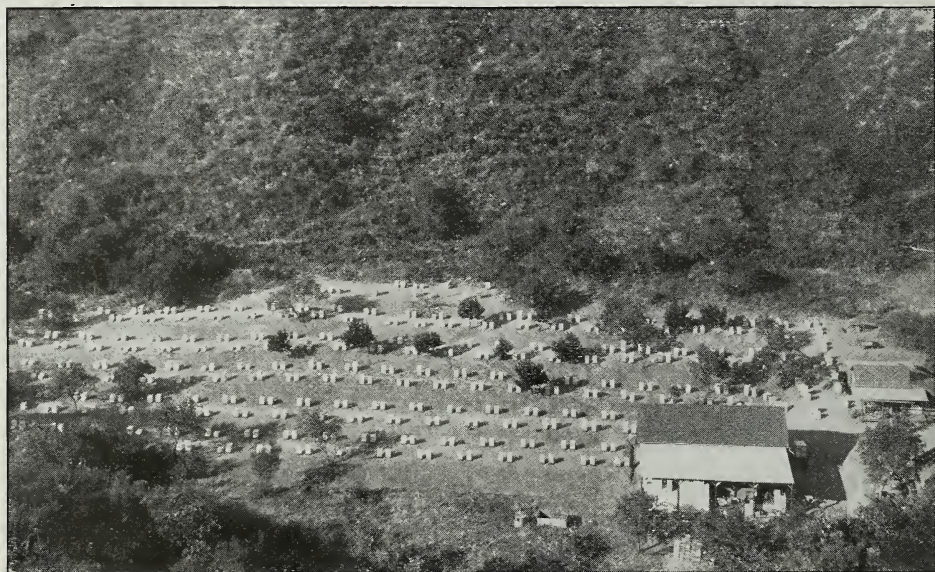


FIG. 2.—MENDLESON'S RATTLESNAKE APIARY.

of the opinion it has already paid for itself, and that he now has a power outfit good for ten or perhaps twenty years, ready to work for nothing and board itself except for a few quarts of gasoline and a little lubricating oil.

But the picture shows something else. In the foreground between the engine and extractor appear to be some metal comb-cases (with tight-closing lids to keep out robbers) in which combs are gathered and brought into the extracting-house.

A little to the right, again, will be seen the uncapping-knife heater, the same being kept warm by means of a gasoline-burner.

When I visited Mr. Mendleson he had the same arrangement except that the pan was not covered; but, instead of a gasoline-burner he used a small kerosene-stove if I remember rightly. It would have been practically

to say; but I am convinced that the plan of melting cappings as fast as they fall from the knife is perfectly feasible; and it is probable that in California, at least, the general principle will become universal in all up-to-date extracting-houses.

Referring again to the power-driven extractor, I may say that the Root Company's development of this principle was due to the suggestions received from Mr. Mendleson and Mr. McIntyre; and now the power-driven idea is getting to be quite general with large extracted-honey producers. In every case but one, so far as I know, a small gasoline-engine is used to furnish the power. Mr. McIntyre uses a water-motor; and when water under pressure is available it is probably the nicest and cheapest power. An electric motor would, of course, be excellent; but it

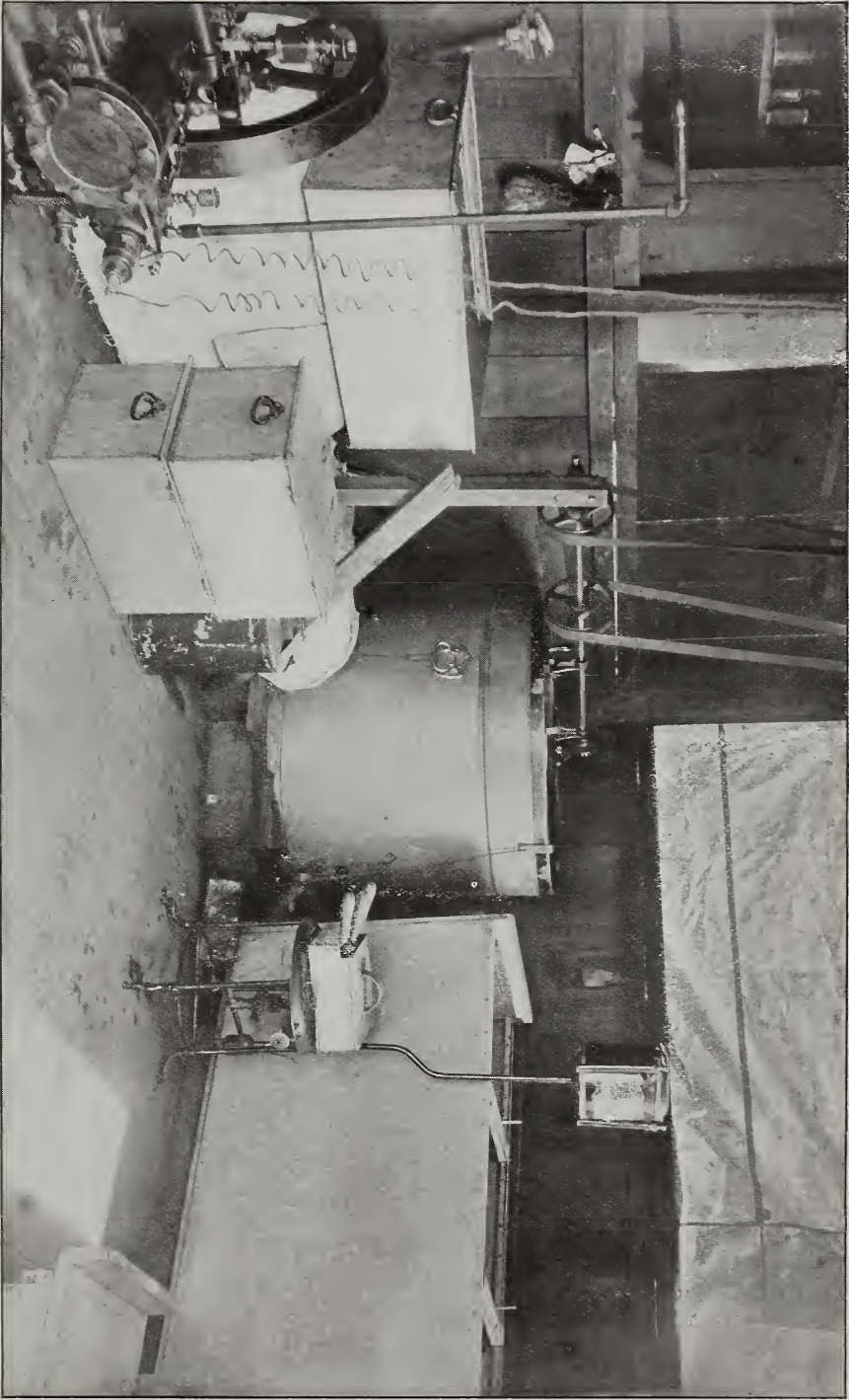


FIG. 3.—INTERIOR OF MENDELESON'S EXTRACTING-ROOM, SHOWING POWER-DRIVEN EXTRACTOR, ETC.

is seldom that either electricity or water under pressure is obtainable in a bee-yard, and hence a gasoline-engine is the cheapest and only available power.

Fig. 2 shows another view of the apiary in Rattlesnake Canyon. Evidently the camera stood on the opposite side of the canyon to where I stood when my view was taken as seen in Fig. 1.

The question may be asked, "Why called Rattlesnake Canyon?" I will explain: I was strictly cautioned, while posing my camera on the mountain-sides, to beware of rattlesnakes, and you may be sure that I did, for several rattlers had been killed in that vicinity just prior to my visit.

This apiary, as will be noted, has all the hives arranged on terraces, for the yard had to be on a sort of side hill. Without these terraces it would be difficult to run a hive-cart to and from the extracting-house or to level up the hives. At the time of my visit the ground was nicely leveled off in steps, and the effect was very pretty.

It will be noticed that Mr. Mendleson works his hives in pairs or groups. The same general principle applies at the other yard here shown (Fig. 4)—namely, the Canulos apiary, located near the scenes of Ramona, of literary fame. In speaking of this yard Mr. Mendleson says the hives are placed two or three in a group, facing diagonally down hill so as to keep the rains from running in at the entrance, for the end of the apiary toward the observer is on very much higher ground, although it would hardly be noticed from the photo.

In the very front foreground one sees the blossoms of what I take to be the button or black sage, from which most of the so-called black-sage honey is obtained. While there is a plant known as white sage, it furnishes comparatively little of the honey bearing that name. This Canulos or Ramona yard is likewise terraced; but it does not show up quite so clearly as in the other apiary.

It will be noted, also, that this yard is located at the junction of a couple of mountains so that the honey can be hauled through the canyon down into the valley below, without climbing the mountain sides. By looking over the mountains one will see what I take to be black and button sage bushes. These are little clumps that dot the sides of the mountains.

PARALYSIS OR DYSENTERY?

An Interesting Case.

BY A. L. YOUNGMAN.

I have been in the bee business for over 40 years. Until recently I thought I knew something about bees, etc. Since last June I have had experience that has taken the conceit all out of me. About June first I had over 250 colonies, in as good condition as bees ever get—hives full, many colonies working in boxes, some having filled full sets of 2-lb. sections. About this time we had about two weeks of cold bad weather which kept the

bees confined much of the time. When good weather came around, the bees (every hive more or less affected), were diseased with something like a chronic diarrhea. They were swollen, and looked as if they were gorged with honey. They congregated in large numbers about the entrances of hives, and had a peculiar quivering of their wings. Stir them up and but few if any would fly. Every now and then one or more would rush out (they could not fly), bent on seeing how far they could get before dying. In three weeks fully a half of the working force of nearly every colony lay dead in and about the hives. On opening a hive, dead and dying bees were found wedged into every crevice and corner, around the ends of frames and between frames and cover. The brood was more or less affected also, some of the larvae being dead and of a dark or nearly black color. In but few instances could I find any thing like a rosy nature about the dead larvae. One of my neighbors, interested somewhat in bees, brought over several old copies of the *American Bee Journal*. I saw by the reports of many bee-keepers to that journal that this disease is not a new thing; in fact, I myself have had it in a mild form several times before, always near the last of June or first of July. I do not remember having lost any colonies outright before.

Out of over 250 colonies I now have nearly 100 left. Some of these are only three-frame nuclei. Barring the limited number of bees now present, I doubt if an expert could detect any signs of the trouble that the bees have passed through. Apparently the bees that are left are now all right. The question is, will the trouble return?

Glen Ellen, Cal.

[The case described here is a very interesting one, and we have to confess that we are not able to diagnose it accurately. From the description given, one would infer that it might be bee-paralysis, for bees affected with that disease will behave very much as here described; but the fact that the malady disappeared on the return of warm weather would seem to lend color to the theory that the trouble, whatever it was, was in the nature of dysentery. We know this: In the height of the honey-flow if a colony be confined for a couple of weeks the bees will be affected with dysentery. In the case that you cite, the bees were gathering stores very rapidly, and consuming them, as they would not do while confined in winter quarters in our Northern States. The effect of such a large consumption of stores, especially of fresh stores not ripened, would seem to indicate that the bees were suffering from a severe case of dysentery, and that, as soon as good weather came on, they recovered just as they would ordinarily do when suffering from this malady in the spring on the return of good weather.

We shall be glad to hear from many of our subscribers who have noticed the same thing; for among our nearly 35,000 patrons there

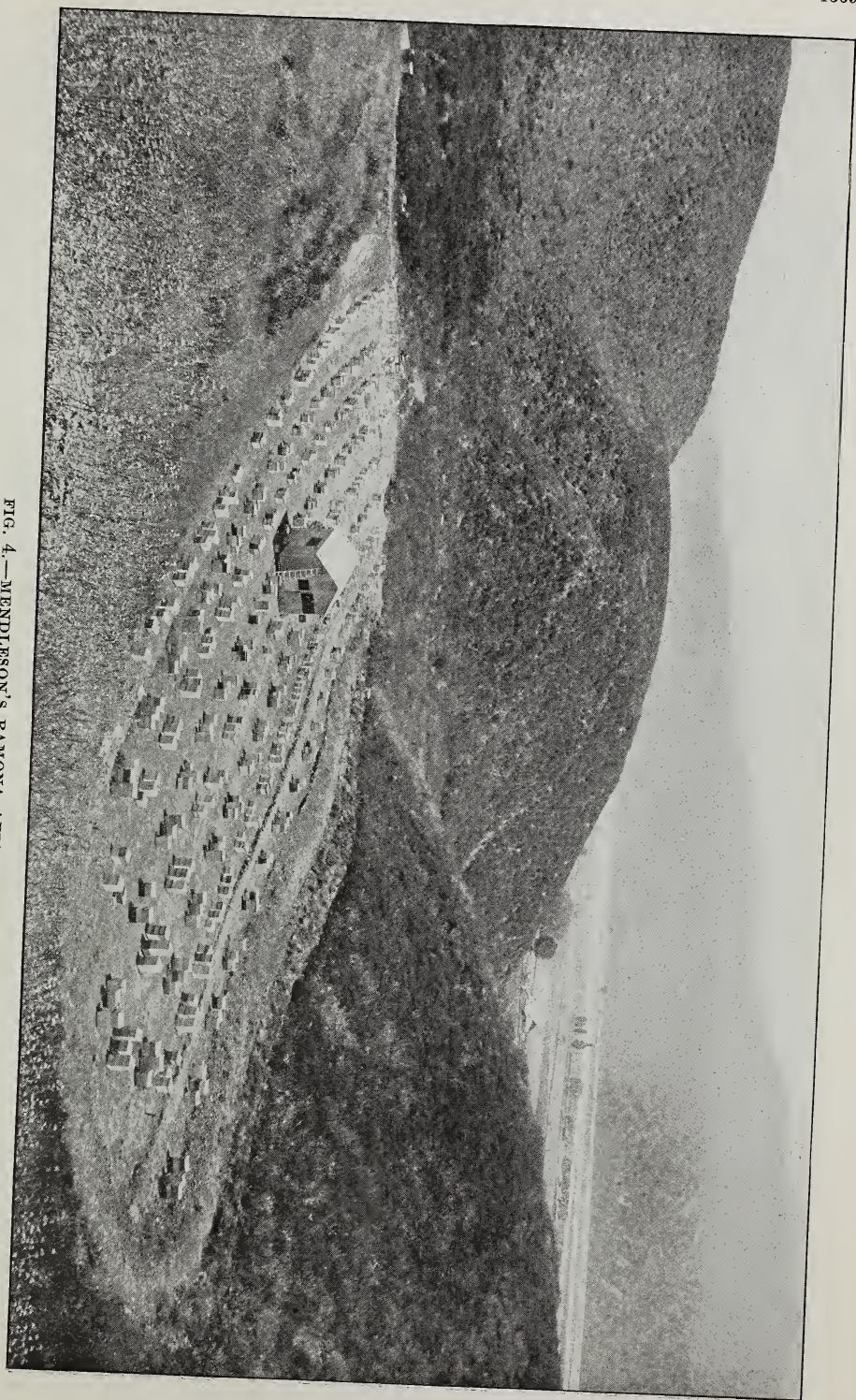


FIG. 4.—MENDELESON'S RAMONA APIARY.

must have been some one among the number who has observed something similar and who will be able to give an accurate diagnosis of the trouble.—Ed.]

BOTTLING HONEY.

How an Enterprising Young Bee-keeper in Michigan Cuts down Time and Expense by Using Machinery in Place of Hand Work; Labeling Glasses without Handling the Labels.

BY E. D. TOWNSEND.

We all like success, like to talk success, and talk of successful people; and the successful person in the bee-keeping line I wish to talk about is none other than Mr. E. E. Coveyou, of Petoskey, Mich., whom I visited on the 15th of last August. Mr. Coveyou is less than 30 years old, and is the owner of four bee-yards, a fine residence, and a bee-hive and honey-bottling factory; and if it were not for the fact that the bees paid for it all in these few years I would not be writing this letter.



E. E. COVEYOU, PETOSKEY, MICH.

Bee-keeperlike I was soon looking over the Coveyou bee-hive factory and honey-bottling works. He makes every thing needed in the bee-keeping line except sections and foundation, thinking it cheaper to buy these two articles than to make them. But what I was the most interested in was his bottling methods, which are the best, in my judgment, to which I have had my attention called. Here

it is that 100 barrels of glass packages are used every year for putting up his own and his neighbors' honey for the retail trade.

I have asked Mr. Coveyou to describe his method of putting up honey for the retail trade, and he has consented; and, with the assistance of some half-tone cuts, he explains as follows:

"Fig. 1 shows at the right the boiler and pipe leading to the different tanks. Next is the filling-tank in front of which are the glasses ready to be filled with the hose hanging at the bottom of the tank. At the left the glasses are piled up with galvanized wire screen between each tier. This makes a very good way to dry.

"Fig. 2 shows our liquefying-tank partly filled with 60-lb. cans of honey. There is a partition through the center, so that 1000 lbs. of honey can be heated in each side. A lower temperature can be maintained in one side than the other, should it be thought advantageous to heat the honey slowly for the first twelve hours.

"The steam-pipe in the middle is divided with valves close to the partition, so that the steam can be turned on or off to keep the temperature uniform. I am standing with a thermometer in my hand, noting the temperature. This should be done quite frequently until the right degree of heat is reached, when the valve practically does the work.

"In Fig. 3 the lady at the right is my sister, Mary Coveyou, filling glasses with what Mr. Townsend has named our "wild-goose bill." This is attached to a hose, and fills the glasses right in the cases, which saves handling. We find this is one of the very best methods we have ever tried. One person can fill 4000 half-pound glasses with honey in less than a day's time, in this way.

"The lady in the center is my wife, showing our new way of labeling glasses. In the first place the labels are not gummed. We take one end of the package of labels and paste it, which keeps the pile together. Then the bunch of labels is also pasted upon the table, face down, which holds them securely in place. The young lady to the left does the pasting. As soon as the top label is pasted, the glass is simply rolled over it, which picks it up and at the same time presses it firmly in place. Thus the work is done without any handling of sticky labels. By this method we can label with the ungummed papers just as fast as we could with the gummed.

"Fig. 4 shows our plan of rendering wax. The tank at the left is a large galvanized arrangement that we use for taking the honey from the uncappings. It is fitted with steam-pipes, and live steam is run through it until the proper temperature is reached to remove the honey without injuring the flavor or color. The cappings are placed in large shallow trays, and the honey and wax run out when sufficiently hot. The apparatus on the stove with the cover slightly lifted is for heating wax. The machine in front of the stove is our make of a wax-press. The 4x4 upright pieces of the frame we find to be

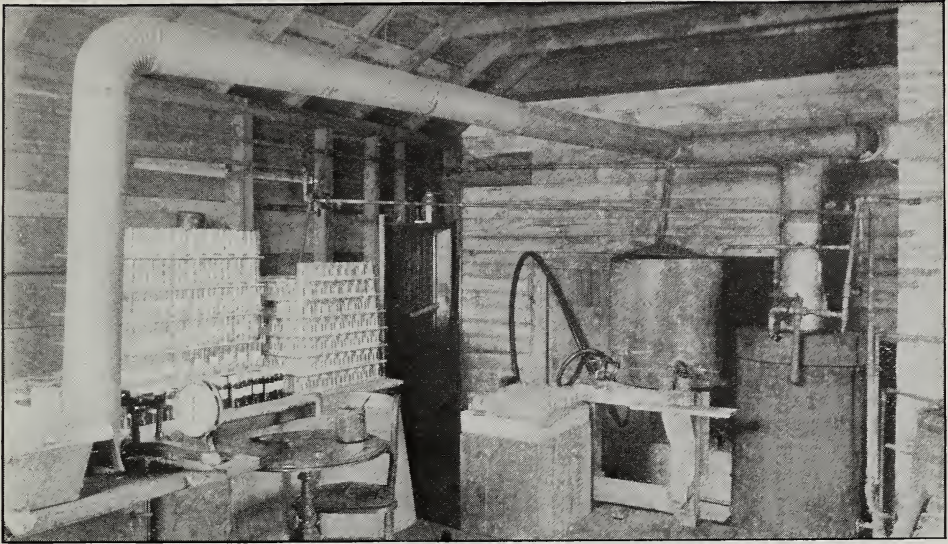


FIG. 1.—E. E. COVEYOU'S HONEY-BOTTLING ROOM.

The bottles are filled by means of a short piece of hose connected to the honey-tank. A quick-working stop at the end controls the flow of honey into the bottles.

much stronger and more practical than braces.

"The tub in front is a common lard-firkin. We find that wood is the best thing to run wax into, as it can be kept warm; and, when

the wax is cool, it lifts out perfectly free from cracks. We have a hole in the bottom of each tub where we can draw off any water that might be there before emptying the wax out, doing away with the muss which would

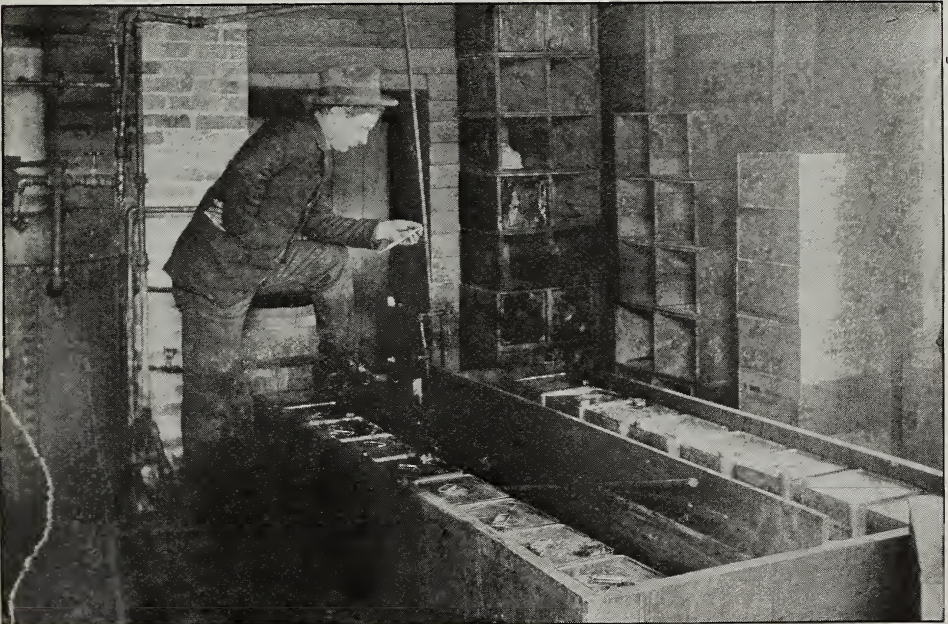


FIG. 2.—COVEYOU'S LIQUEFYING-TANK.

This is divided into two parts, each of which will hold a thousand pounds of honey. The temperature of the water in each part is controlled by a separate steam-pipe.

naturally be made should water not be drawn off.

"An automatic eight-frame honey-extractor and gasoline-engine, ready to run, are shown in Fig. 5. The belt-shifter is shown bolted to the base of the honey-extractor. One hand can be placed on this and the other on the automatic reverse, and honey can be reversed in the least possible time. We extracted 3000 lbs. in less than two hours last season. One man tends to the machine, fills cans, and fills and moves the combs from the extractor. The gasoline-engine is manufactured by our local firm here. It is a two-horse-power machine, and does the work well. In former years we had extractors at each apiary; but now we have disposed of all other extractors and bought this machine, and we are more than pleased with the results.

Any one, even though he has never ridden a bicycle, can ride this machine safely, with a little care at the start, as this railroad attachment holds the whole rigidly in place. All the operator has to do is to propel it. I have used this machine for six years, and find it better than a horse or an automobile; in fact, were it not for this I would have to take a tie ticket to go to my apiaries.

"The out-apiaries are located higher than Boyne Falls, which is about 16 miles from Petoskey. I am able to coast nearly half this distance. All I have to do is to put my foot on the coaster brake occasionally to avoid going too fast. I have two of these machines at the present time.

"Fig. 6 shows our home. My oldest boy, Johnny, and I are ready to start with the wheel and railroad attachment for the out-



FIG. 3.—FILLING AND LABELING BOTTLES.

The method of filling the bottles is here shown. The top label in the bunch is pasted, and the bottle rolled over it. Thus the labels are put on without being handled at all.

We never could think of going back to the hand machines now, any more than farmers would think of going back to the flail for thrashing their grain.

"We think this method of extracting honey in our apiaries the cheapest and most satisfactory way, as the extracting can be done much better. Practically all of the honey can be removed from the combs; and one thing which we were surprised to learn was that we never broke a comb in doing it.

"My method of going to the out-apiaries which are located along the railroads is shown in Fig. 7. Twelve to sixteen miles per hour can be traveled with perfect ease.

apiaries. All of our bees are kept in out-apiaries."

Unlike most arrangements for filling glasses for the retail trade is the device constructed and used by Mr. Coveyou. It is very simple—just a rubber hose about four feet long, with one end fastened at the bottom of his filling-tank, in place of the usual gate. The other end is provided with an arrangement similar to the covers on syrup-pitchers, for cutting off the flow when the desired quantity is turned out, only this arrangement is held so closely together with a spring that it not only cuts off the stream when the tumbler is full, but holds the honey so there is

no drip when moving to the next tumbler. And now I come to the valuable part of my story, viz., that one does not have to move a tumbler at a time (or other receptacle) under the gate, as almost all do. Four dozen or so, as the engraving shows, are placed on a carrying-tray, or, as Mr. Coveyou says, placed directly into the case that they are to be shipped in; then the hose arrangement is moved along down one row of glasses, then the next, and so on until the whole case is full. This is much better and faster than placing one glass at a time under a gate to be filled. To let the honey flow, a lever is pressed, when the spring does the closing.

If one has ever tried to lift a 60-lb. can of hot honey from the melting-tank, to climb up on a scaffold, and empty it into a large tank, to be drawn off into smaller receptacles, he will appreciate what Mr. Coveyou has to say along this line. He writes:

"I have put in a new boiler, a wax-rendering heater, which is described in Fig. 4, and a two-cylinder Westinghouse steam-engine, which is not shown in the picture. It is a two-horse-power size, and I use it for pumping water, washing and brushing glasses, to clean them ready for honey, etc. I have also put in a pump

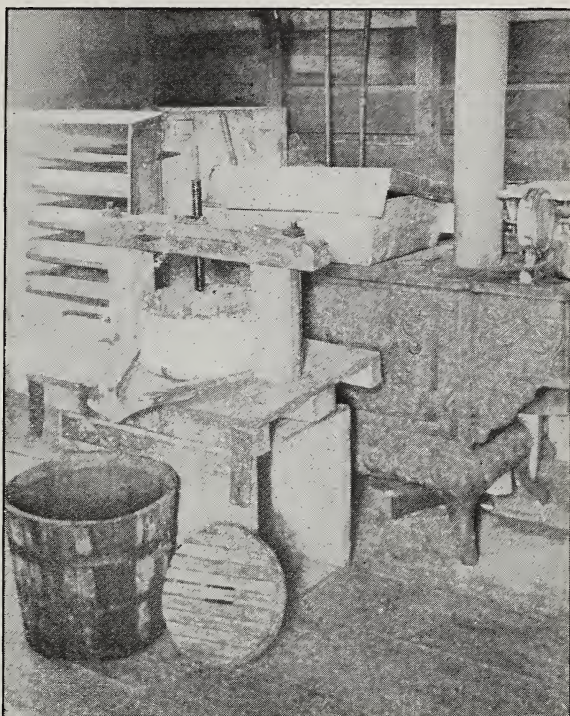


FIG. 4 —MR. COVEYOU'S WAX-RENDERING APPARATUS.

The open form of press is used. The combs are melted in another tank, and then dipped into the press where the wax is forced out.

for pumping honey right from the cans in the liquefying-tank to the filling-tank. While

this pump is not much larger than a watch, it will pump a 60-lb. can of honey dry in one minute. I have the pump fastened to the liquefying-tank, and I use a rubber hose for a suction pipe. I place this hose into the mouth of the 60-lb. can of melted honey, and pump it into the filling-tank. This has relieved me of one of the most disagreeable operations connected with bottling honey. Just think of the old way of carrying sixty-pound cans of honey to the tank, lifting them up, then holding them until empty! now I can be unscrewing the next can, carrying away the filled cases of glassed honey, or

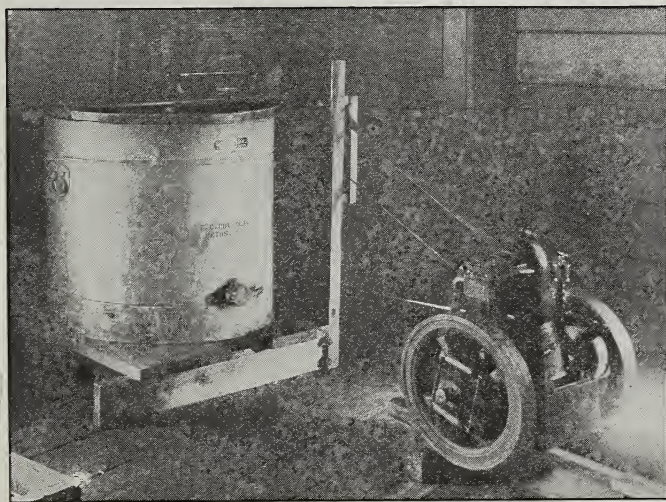


FIG. 5.—A CORNER OF THE EXTRACTING-ROOM.

A gasoline-engine furnishes the power for turning the extractor. The engine is allowed to run all the time, the extractor being stopped and started by shifting the belt on or off a loose pulley.

wheeling the filled cases of honey away on trucks that will carry a thousand pounds at a load, etc."

Remus, Mich.

the bottle back and picking up another. Why, one with this simple device could easily put the other fellow clear behind in the race.



FIG. 6.—STARTING FOR AN OUT-APIARY.

An ordinary bicycle is used; and when the railroad is reached, a third wheel, which is flanged, is attached.

[We regard this as a contribution of exceptional value, and we hope every one of our readers will take pains to read it carefully, because there are several ideas in it that are not only novel but practical as well. Mr. Coveyou is a comparatively new correspondent for the bee-papers; but apparently he has been quietly jumping ahead of some of us. The illustrations show something of his genius at getting up devices and short cuts.

Very often we run across men of an inventive turn of mind, but who do not seem to be able to turn their inventiveness into dollars and cents. Mr. Coveyou certainly does not belong to this class, for he makes his talent count for something. In the first place, he has worked out a practical and unique system of bottling honey and of rendering wax; and right in this connection his method of melting up old combs is precisely the same as the one we have adopted—melting up the combs in a large hot-water boiler, and dipping the slumgum out in a press and squeezing it. We were surprised that Mr. Townsend as well as Mr. Hatch had each settled upon practically the same method, each without the knowledge of what the other was doing.

Mr. Coveyou's method of filling his bottles by means of a long hose, or, as Mr. Townsend calls it, a "wild-goose bill," is certainly excellent. This latter, as we understand it, is nothing more nor less than the same principle employed in a self-closing molasses-pitcher that chops off all the drip after one is through pouring. The same thing is attached to a hose, and it is perfectly conceivable that one could fill bottles standing in the crates with far greater rapidity and convenience than can be done by the old plan of picking up a bottle, adjusting it exactly in position under the molasses-gate, and then lifting, shutting off the honey, and putting

Whether this idea was original with Mr. Coveyou or not we can not say; if so, we should pronounce it well worthy of a patent; at all events it would seem that the idea is valuable enough to warrant dealers in offering them for sale on the basis of a royalty.

Mr. Coveyou emphasizes another important thing that is possibly too often overlooked; and that is, the convenience and value of a large oblong tank of hot water. Various feed-cookers are on the market, in cost running all the way from \$2.00 to \$3.00 up to \$10.00 or \$12.00. In looking over the catalogs of Montgomery Ward & Co., and Sears, Roebuck & Co., we find one that we think just right for the use of the bee-keeper, called the "Farmer's Choice," listed

at only \$8.95. This is the No. 3 size, having an oblong tank 4 feet long, 24 inches wide, and a foot deep, with a capacity of 60 gallons

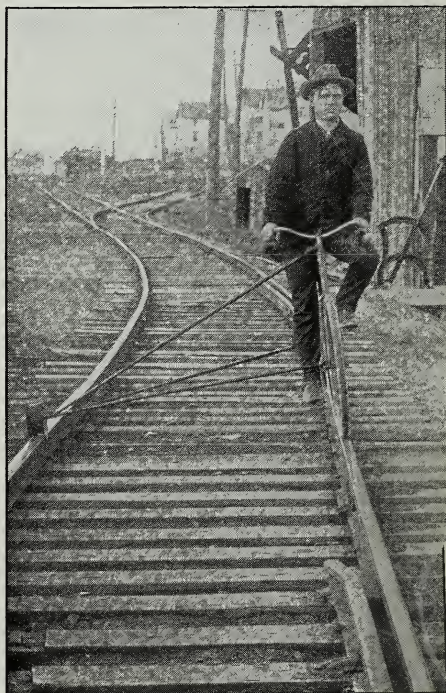


FIG. 7.—A QUICK AND EASY METHOD OF GOING TO OUTYARDS LOCATED ALONG A RAILROAD TRACK.

Any one, whether he be able to ride a wheel or not, can easily make 15 miles an hour on this machine.

—just right for eight 60-lb. square cans. There are larger sizes; but this, in our judgment, will be ample for the need of most bee-keepers. In the Sears & Roebuck catalog apparently the same thing is called the "Handy" feed-cooker, and sells for a dollar or more.

The water in a cooker of this sort can be brought to a boil, or heated to any temperature desired, making the fire in the stove to meet required conditions.

There are other feed-cookers that are cheaper, but circular in form; and while these would be all right for rendering up old combs in hot water, their shape is such that they will not take more than one or two square cans of honey at a time, and hence we would not regard them as economical, even if they did cost a less sum of money. The oblong tank feed-cookers first described can be used either for rendering wax and melting up honey, or heating water for any purpose on the farm, and that, of course, includes the general cooking of feed for live stock.

We are not running a free advertisement for the catalog houses, but we are only endeavoring to help out bee-keepers who may wish to carry out some of the practices suggested in this article. But we would say that any bee-keeper who has as many as 300 colonies, especially if he does any bottling of honey, would necessarily have to have one of these cookers. It is a shame to use the good wife's stove, and mess up the whole kitchen; and we desire to suggest to the "man of the house" that he will save money if he does his bottling in a scientific way with the right kind of apparatus and at the same time win the everlasting gratitude of his wife.

But perhaps one may desire to use a small steam-boiler. We have looked through several lists, but do not find any thing cheaper than that offered by Sears, Roebuck & Co., called the "Hercules," listed at \$20.85. These are not large enough to run an engine, but would answer for generating steam to use for heating water around a large tank of honey.

In this connection the novice should clearly understand that honey should never be heated except over a body of water, and never hotter than 160 degrees Fahrenheit. Just note that Mr. Coveyou finds it necessary to keep track of this temperature by means of a thermometer; and right here is one of the secrets of his success. Nothing will ruin the bottling business quicker than an overheated honey.

We have before explained that a large power-driven honey-extractor has a great advantage over one driven by hand. The engine is not only cheaper than a man, but it will do quicker and cleaner work. One can not begin to extract combs as clean by hand power as he can with an engine. We find the small gasoline-engines offered to the public quite satisfactory for the purpose. But one should be careful to get a standard make from some standard company. Some

of the newer engines, especially of the bicycle type, offered at cut-throat prices, one will do well to avoid. Mr. Coveyou's method of going to his apiaries is certainly unique. Why, it would be just fun to run a bicycle on a steel track. We do not know whether he made the third-wheel attachment or whether he bought the outfit from a bicycle concern; but in either case he shows his up-to-dateness by adopting this rapid means of locomotion to his outyards. The only objection to it is that he can not very well carry any stuff with him. We are, therefore, inclined to believe that, in the near future, we shall see him going to and from the yards with an automobile. We have used the horseless carriage just enough to know it can be relied on, providing one gets hold of a standard reliable make of machine. We would avoid a high-priced outfit, one which is nothing more nor less than a gigantic locomotive. Better get a single-cylinder machine like the Reo, Olds, or Cadillac, any one of which can be bought for between six and seven hundred dollars. Many times a second-hand machine can be obtained for half these figures; but be sure to have a practical automobile man look the machine over to see that it is not a junk-heap.

We note by our advertising columns that Bro. Hutchinson has engaged Mr. Coveyou to write a series of articles, the first one appearing in the November issue of the *Bee-keepers' Review*. We congratulate our contemporary on having secured such a genius. Doubtless many of our readers will be glad to follow up this apicultural star.—ED.]

THE CAUSE OF BEE FEVER.

An Interesting Account of an Amateur's Success.

BY GEORGE HOWARD.

Last April I bought two colonies of bees for \$10.00, and brought them home one night after dark. The frames in the old hives were mailed fast.

May 30, hive No. 1 swarmed. June 1, hive No. 2 did likewise. June 10, hive No. 1 threw out a very small swarm—about two quarts of bees. I thought they might build up for winter and make a good colony for another year, so I hived them. All my swarms were put in new Danzenbaker hives and numbered 3, 4, and 5.

June 12 I went to work to transfer the two old colonies to new Danzenbaker hives. Each one had five or six queen-cells. I transferred No. 1 first, and cut out all cells but one; then as I was working at No. 2 one of the queen-cells opened up and out walked a queen! For fear of losing her I picked her up and let her run into No. 1. Then I cut out and destroyed all the rest of the cells but one and finished transferring.

The next day I noticed that nearly all of the bees were going in and out of No. 1 with only an occasional bee going into No. 2. Ac-

cordingly, that evening, I interchanged the locations of the two hives, as they sat side by side only 15 inches apart. The next morning I watched to see the result, and found that the field bees as they came back would dance up and down in front of No. 2, and then many of them would go in. But in two days No. 1 was doing all the business again.

I had other work to do, and I didn't want to bother them any more, so I left them that way all summer.

June 25 I put a super of 32 Danzenbaker sections on each of the five hives. Nos. 1, 3, and 4 went right to work in them.

On July 20 No. 3 threw out a very large swarm which lodged on an apple-tree about ten feet from the hive.

While I was getting the hive ready they left and went into the top of a willow ten rods north, so I got a ladder and cut the limb and shook the bees into the hive. I saw the queen, picked her up, and let her run into the hive. I then went to work, thinking that every thing was all right. That evening I went out to bring the swarm into the yard; but somebody had taken the cover from the hive, and the bees were all gone. That swarm coming from No. 3 stopped its work in the sections, and they haven't done any thing since that time.

In the meantime I took a peek into No. 5, and was surprised to see the super almost full, so I raised it up and put an empty one under it; and the way the bees went to work, it did me good to stand and look at them. There was a constant stream of bees coming and going, falling over each other, trying to get in and out of the hive.

As for results, that little despised second swarm that I thought would hardly build up for winter has done the best of any of them. I have taken off two full supers of white clover and 21 full sections of amber honey, besides 11 sections that were not finished. In all I had 85 lbs. from No. 5; 25 lbs. from No. 3; 64 lbs. from No. 4; 32 lbs. from No. 1, or

206 lbs. in all. Besides these, there were about 20 partly filled sections.

I opened No. 2 about Sept. 1 and found they had no queen and only about a pint of bees, so I put the hive on top of No. 1, but the next morning I found the pint of bees all dead in front of the hive.

Now I have four swarms of bees that are fairly strong, and I hope to winter them all right. I am going to get some drygoods-boxes and set over them and fill with chaff.

I have sold my honey so far for 15 cts. I have sold 8 boxes of 20 sections each, amounting to \$24.00. I also gave away some to the neighbors, and have a lot left for pancakes this winter.

Schenectady, N. Y., Sept. 29.

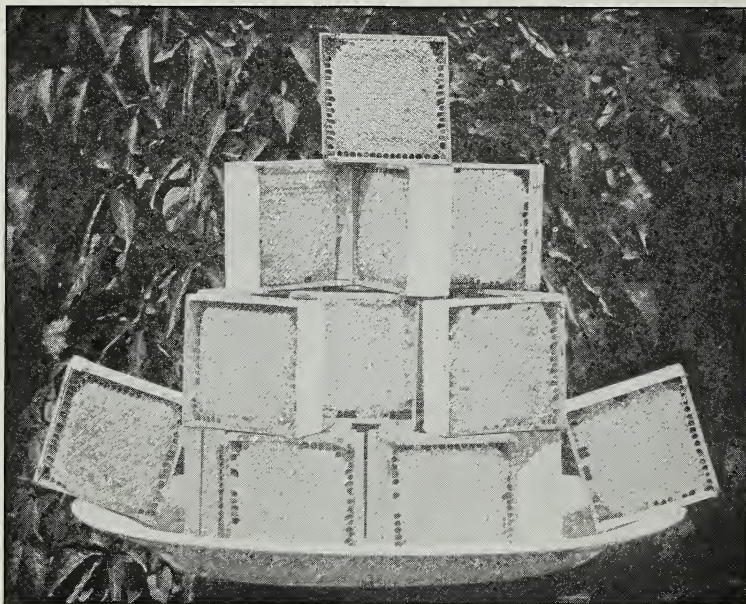


FIG. 1.—SOME FANCY HONEY FROM THE APIARY AT A CANADIAN EMIGRATION BRANCH OF IRISH ORPHANAGES, HESPELER, ONT., CANADA.

BEE-KEEPING AT AN ORPHANAGE.

A Good Honey Average in the Apiary at a Canadian Emigration Branch of Irish Orphanages.

BY G. W. TEBBS,
Superintendent.

I started bee-keeping with the purchase of one colony, and finished up the season with three, which I ran for comb honey. I wintered them out of doors, putting over the hives rough wooden cases, and packing in between with dry maple leaves. All of them came out in good condition.

The first year, of course, I made some silly blunders, such as putting the sections upside down in which I had placed full sheets of comb foundation. But during the winter

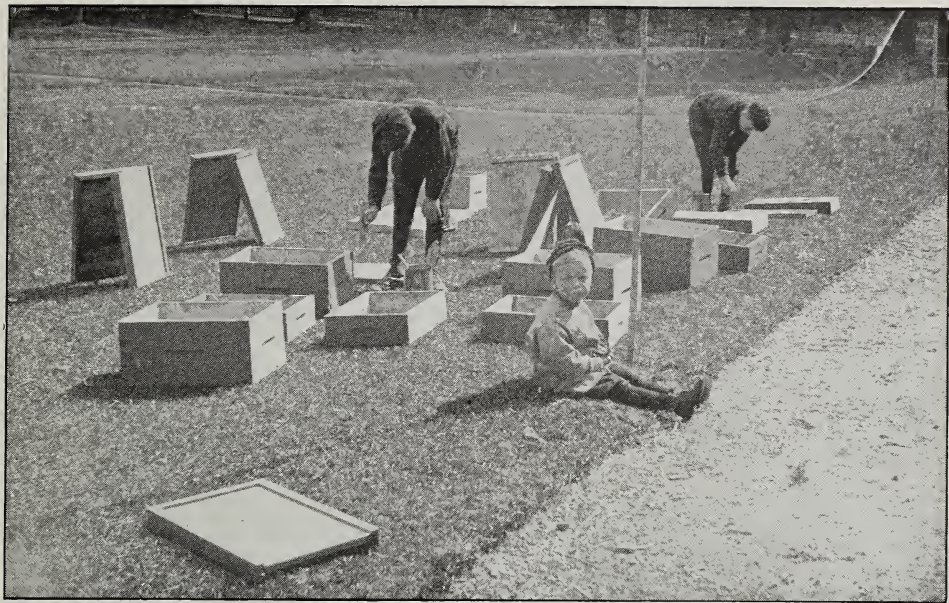


FIG. 2.—ORPHAN CHILDREN PAINTING AND PREPARING HIVES FOR USE.

I made a study of bee-keeping, becoming *theoretically* perfect, but I needed the past summer's work to teach me that practice too is necessary.

This year I have had a good surplus—an average of 50 lbs. of comb honey per hive. Most of the sections were as fine as those

shown in the engraving. It was taken off the hives as soon as the clover season was past. We have had an exceedingly late spring and dry summer that has been against us, but my ten colonies are in good condition for the winter, having plenty of stores.

Another engraving represents our boys

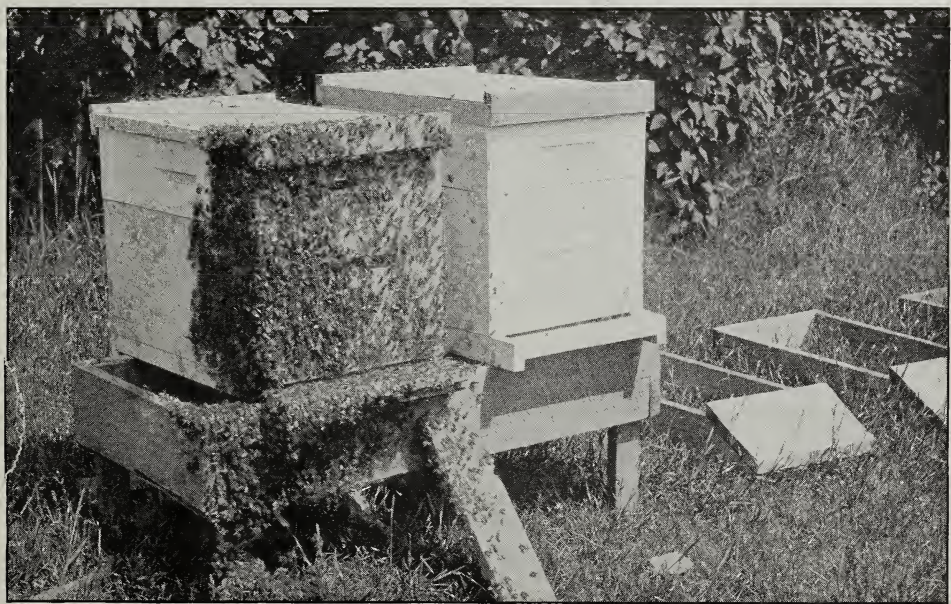


FIG. 3.—A COLONY CAUGHT IN THE ACT OF SWARMING.

(this is a Canadian emigration branch of Irish orphanages) painting hives after putting them together. The third one shows one of my colonies just in the act of swarming. My apiary is on a southern slope, and is screened from the wind on the north and west by low lilac bushes. All my swarms have hitherto gone to these bushes, most of them being more than 20 yards from the apiary or 5 feet from the ground.

Hespeler, Ont.

[Bee-keeping would serve a very useful purpose at any orphanage or home, as it would give the inmates some useful work as well as recreation. We know of several charitable institutions that are taking up apiculture with this very end in view. Many of these are raising their own garden truck as well as general farm produce, and why not honey? Mr. Tebbis has, in this case, given us a splendid demonstration of the possibilities in this line.—Ed.]

extracted honey; first on specimen of extracted honey; first on best display of extracted honey in granulated form.

The exhibit was of my individual effort, but you may see by my banner in the photo that I made the exhibit in the interest of all Northern Michigan red-raspberry-honey producers.

Rapid City, Mich.

THE PLURAL-QUEEN SYSTEM.

The Colonies more Uniformly Strong at the Beginning of the Honey-flow; Swarming Easier to Control; Why Only One Queen is Left when Excluders are Removed.

BY HAROLD DAVENES.

For the last three years I have been keeping the majority of my colonies in the shallow divisible-brood-chamber hives, two to

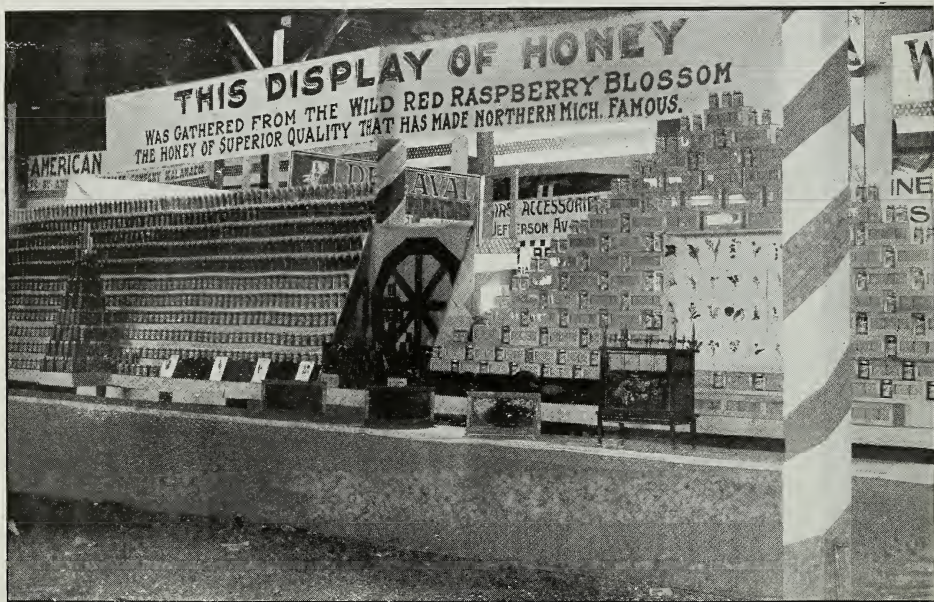


EXHIBIT OF RASPBERRY HONEY AT THE WEST MICHIGAN STATE FAIR, GRAND RAPIDS.

HONEY EXHIBITS.

A Display of Fine Raspberry Honey at the West Michigan State Fair.

BY GEO. H. KIRKPATRICK.

I mail a photo of my recent exhibit of bees and honey at the West Michigan State Fair, Grand Rapids. You will notice one more point has been scored in favor of red-raspberry honey, it having received a majority of the first prizes as follows:

Second on display of comb honey; first on best use of comb honey, first on display of

three stories, with a queen in each super, separated by an excluder. By working the plural-queen system I gain three valuable points: 1. A hive packed with brood, and overflowing with bees by the first week in March, just at the opening of the orange bloom; 2. A better average of surplus honey per colony. Some daughters of my best breeder, when worked on the single-queen plan, fall far behind in the production of honey from some of their sisters in the same apiary. Two or three queens in one colony will overcome the defects of the less productive queen; 3. Better swarm control. While it

does not absolutely control swarming in my locality, I get fewer swarms.

I introduce my queens in the fall. Hardly any honey is coming in at that time, and brood-rearing is at a low ebb. If mated queens are given they are introduced two days after the old queens are removed. Each queen is put in a spiral cage, and, instead of the tin cap, a thick piece of paper the same dimensions as the tin cap is put in its place. Our cage is put into each super with an excluder between. If no queens are on hand I use grafted cells. Care must be taken that only one super is left open at a time to allow the queen her flight.

I have just read Mr. Alexander's article. I wish he would give me some information through GLEANINGS. When I remove the excluders I find only one queen in the hive shortly after the operation; while by using excluders I am able to keep as many queens as there are supers, *right through the winter*. Remember, it is in the fall of the year. Have I committed a breach of etiquette by not formally introducing the queens to each other in a little boxful of pampered bees? Why is it they disappear? and who does the killing? My experience has been the same as yours, Mr. Editor. One queen has nearly always turned up living; but I know for a fact that the bees don't always do the killing.

QUEENS WITH THEIR STINGS CLIPPED.

For this operation I use an anesthetic. Take a quart Mason jar and drop in a piece of sponge the size of a walnut saturated with chloroform. Close the jar by stuffing a piece of cloth in the opening, so as to make it perfectly tight, and let it stand for about three minutes. Catch your queens and put each one in a small wire cage, and feed them all with a drop of honey on the wire. Now with a piece of string lower the cage in the jar and replace the cloth. It will be for only a moment, for the *instant* you see the queen falling, pull out the cage and at once remove the queen; grasp her with the thumb and first finger of the left hand, and press gently at the top of the abdomen. When the right amount of chloroform is given it causes a spasmodic contraction; the sting protrudes, and is easily cut with a pair of scissors. The queen will soon revive, but care should be taken not to give an overdose, for it always kills. Two of those sting-cut queens were introduced into a hive, and were not molested at all through the winter.

I have just concluded an interesting experiment with a friend on the plurality of virgin queens in one colony. There is a case where the queens were balled by the bees, and they got black eyes in fights between themselves. Fifteen queens were raised in a queenless hive from grafted cells, and each in a cage. Five of the queens were sacrificed in fights and on the operating-table. Two virgin queens, sting-cut, were put in a small cage. Immediately there was a mix-up, each queen continually jabbing its pointless sting into her opponent's neck. Biting with all their might, they fought only to become ex-

hausted and break away for rest. This fighting continued at intervals for half an hour. As no hurts were given or received, five sting-cut virgins were introduced to the *parent* hive in spiral cages. On examining the hive four days later, four of the queens were on the frames, four minus legs and wings. All were crippled; these were removed, and five more introduced. This time only three were left. The bees seemed to have picked a favorite. The other two were a sorry sight. This one queen looks to be perfect, and after a long period has just started to lay. I was beginning to think that the sting of a virgin queen came into play on her drone in the act of copulation. The eggs look natural, so I do not think the queen is a drone-layer.

If I can get the bees to accept a plurality of virgin queens in a hive by Mr. Alexander's method I feel sure that several queens can be mated at one time from a single hive. I have a batch of queens due to hatch in a few days, when the experiment will be tried.

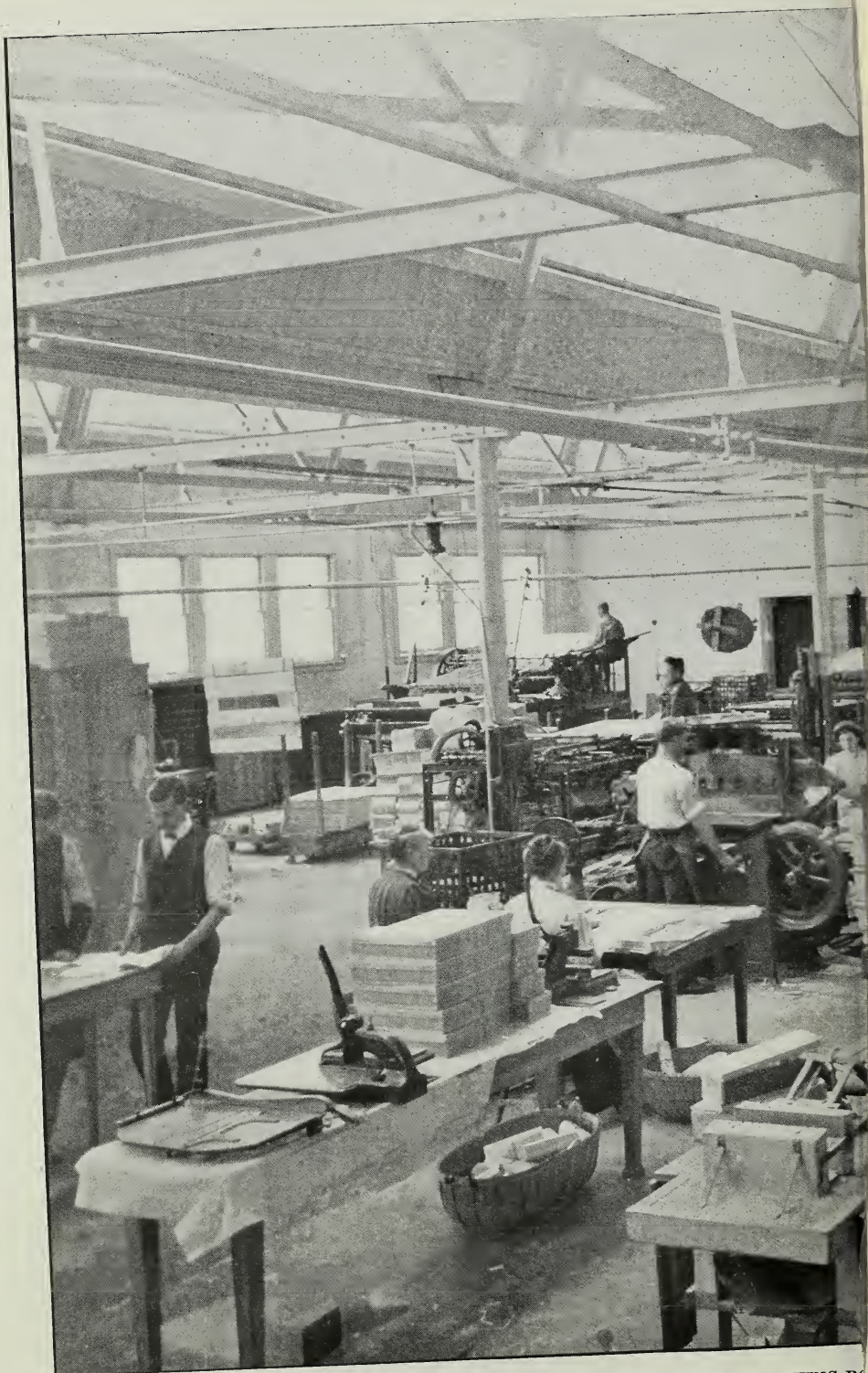
Sierra Madre, Cal.

[This was referred to Mr. Alexander, who replies:]

In connection with the experience of Mr. Davenes there are some comments I should like to make. First, I can not see why it is best to have only one super open at a time when a surplus of virgin queens is hatched in the hive. I have always had an entrance to each super open several days previous to their maturing, so the bees could become acquainted with their new entrance; and with us the young queens are less likely to be balled or injured with the bees, as they appear to work more like separate colonies than when they have only one entrance until the young queens are ready to fly.

In regard to surplus queens being stung when the excluders were taken out so as to allow the queens to meet each other, I will say I have never had a case of this kind; but I am inclined to think that the queens are stung by young bees about a week old, as bees about that age always seem to be more inclined to sting a queen than at any other time during their lives. I have many times known bees of about that age to grab and sting their mother queen, simply because their hive was suddenly disturbed. I have never had a case of laying queens stinging each other during the summer season.

Now as to the practicability of clipping off the stings of our queens, I don't think the average bee-keeper would be likely to make it a success. There are many who can not clip the wing of a queen without injuring her for life; and I am sure that there would be a large per cent of good queens killed if they attempted to clip their stings. I think there are other ways much safer by which the desired results could be obtained. As I have written before, I have but little faith in keeping a plurality of virgins in a colony unless they are separated with queen-excluders. We think it safer to keep them separated from each other ten days or more after they com-



INTERIOR VIEW SHOWING ONE END OF THE PUBLISHING-ROOM
This one room is 60 x 100 feet; is lighted by the modern saw-tooth skylights; is fire-pr



INTERIOR VIEW SHOWING ONE END OF THE PUBLISHING-ROOM OF GLANINGS IN BEE CULTURE AND OF THE A B C AND X Y Z OF BEE CULTURE.
 This one room is 60 x 100 feet; is lighted by the modern saw-tooth skylights; is fire-proof being built of concrete and steel. The machinery is of the very latest, being driven by individual electric motors.

mence to lay than to remove the excluders as soon as a few eggs are found. We must all be careful in introducing and trying to keep several queens in one colony. One important part seems to be that the bees and queens must become well acquainted with each other; under certain conditions that neither the queens nor the bees have any desire to sting one another. This part of our business is only in its infancy, and it will require some time to work out a perfect method that can be relied on under all circumstances.

E. W. ALEXANDER.

Dalanson, N. Y.

[At first sight this scheme of clipping queens' stings looked ridiculous; and while, as Mr. Alexander says, the average person may not be able to work it, there may be something in it to determine whether the bees or the queens do the stinging. From a scientific point it may be worth developing. Practically there would not be much in it; as, if the queens can not sting each other, they could bite and worry each other to death just as Mr. Davenes reports they did do in one experiment. To change the subject, it is interesting to note that Mr. D. says that, with the use of excluders, he is "able to keep as many queens as there are supers, *right through the winter*."—italics ours. This is something important, and we should be glad to hear more in detail how he does it.—Ed.]

DOUBLE-QUEEN COLONIES.

More than Two Queens in One Hive Not a Success, and these Two Must be Kept Separate.

BY J. E. CHAMBERS.

Mr. Editor:—After reading your footnote to my article I decided to write an article describing my way of using two queens for getting colony strength, especially when the time is too short for one queen to accomplish the work. I have read Mr. Titoff's strictures on the plural-queen system, page 1328, but I do not think his arguments against the use of two queens very conclusive, for the reason that two of the important factors mentioned, namely, food and heat, are both present; but the third one, the ability of the queen to put in the requisite number of eggs in the shortest limit of time, is seldom or never to be relied upon in this climate. To illustrate, during the last half of June and all of July we have a dearth of both pollen and honey, more or less complete; and, though the hives are well stocked with supplies, the queens, even those of Carniolan stock, lay only about two-thirds as many eggs as they should to insure a good strong force for the August flow from sumac. I suspect that this condition is common elsewhere, and it is under just such conditions that I use two queens with complete and gratifying success. But in my practice I do not try to introduce more than two queens to a colony. In fact, it is really the use of two colonies as well as of two

queens. As will be recalled, perhaps, I mentioned in my article on p. 1146, Sept. 1, that means to keep the queens apart are necessary in order to insure success; and in your footnote you emphasize the words *means to keep them apart*, and ask whether I refer to separating bees or queens. I refer to both bees and queens, but to queens in particular. The bees are not the main cause of the trouble.

My plan of using two queens contemplates the employment of a device to separate entirely the queens and to keep the bees in an isolated condition. This secures for the apiarist all of the advantages claimed for the two-queen plan, without the fuss and uncertainty of a long process of preparation and introduction of queens. Briefly described, it consists of a board, the size of the top of a hive, with a large opening in the middle. This opening is 14 inches long and 10 wide, and is covered top and bottom with wire cloth. There is also a one-inch hole covered with excluding zinc in each corner of the board, and a flight-hole in the rear. This completes the device. When using, it is laid over the main hive, and another body is placed on it. A set of empty combs is put in, and a young laying queen in a cage is given. The cover is then put on and the operation is complete. Soon quite a few bees come up through the holes in the corners that are covered with zinc. These soon take up with the caged queen and gnaw her out. A new entrance is established through the flight-hole in the rear, and in a few days another colony is established; but the severance is never complete, and they can never be reunited. After a start is made, brood-rearing goes on quite fast, for, even though the number of bees with the upper queen is not great, the heat coming up through the wire cloth furnishes all the warmth needed. I run for extracted honey only; and when the flow is once on I remove the board; and the colony, now grown very powerful, is all together.

Though this plan has its defects I know it gives me good results. With the ordinary deep hive-bodies it would have some serious faults; but with mine that are only six inches deep, two bodies below and one above, with two extra bodies for surplus room, it is ideal. It is no trouble to establish a colony in this way, as it takes only a hive, a queen, and a set of combs, and the bees do the rest; and just think what colonies—180 lbs. of honey in the short space of fourteen days tells the tale.

San Angelo, Texas.

BOTTOM STARTERS IN SECTIONS.

Some Unsatisfactory Results; Why the Uneven Comb Honey was Produced.

BY W. A. PRYAL.

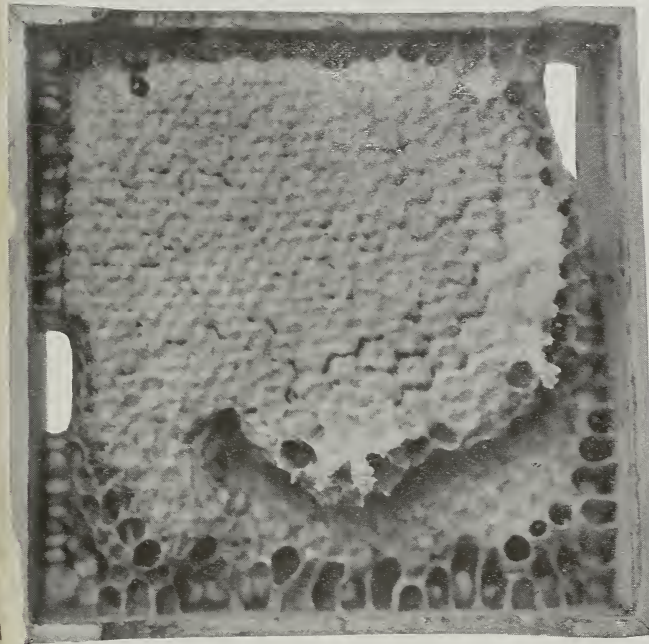
The past season I tried Dr. Miller's method of placing two starters in a section, as described by that eminent apiarist in his fascinating book, "Forty Years Among the Bees."

To those unacquainted with his method I will state that he places one starter, the larger one, at the top of the section after the usual manner; at the bottom he sets another that stands upright to the height of about one-half inch. In the doctor's location this plan may work to a charm, but with me it is a failure. About half the sections would be finished in the freakish way shown in the accompanying photograph.

It would seem that the bees working upward would swing their comb off to one side so as to allow the descending workers to make the other tack. Perhaps they believed "in keeping to the right," as the law of the road directs. At any rate, such sections are undesirable. Aside from their odd and unlighty appearance, they also are often marred by being broken, as the comb is too often fastened to the separator from which it has to be torn asunder.

Oakland, Cal.

[Dr. Miller was asked to explain this difficulty if possible. His reply follows.—Ed.]



AN ODD RESULT FOLLOWING THE USE OF BOTTOM STARTERS.

Dr. Miller believes that the space between the two starters in this case was too great, thus accounting for the separate combs.

As the bottom-starter in sections is my "baby," I am very thankful for the opportunity of saying how failures might happen. I have not seen the photo from which the photo-engraving in this number was made, but I have seen two others taken by Mr. Pryal, which I have studied with much interest, and from them I think I can make a pretty fair diagnosis.

Mr. Pryal says, "In the doctor's location

this plan may work to a charm, but with me it is a failure," and the pictures show it to be a very dismal failure. The only thing I can think of that should make any difference between his locality and mine is that he is in a warmer locality, and the higher the temperature the softer the wax becomes, and so the more likely a bottom-starter would be to topple over. But the bees have a way of equalizing the temperature in the hive, so that the heat in the super will be no greater on the hottest day than in a cooler one, so I don't believe temperature is the culprit. I am very strong in the belief that the plan will work in one locality as well as in another, and that the next time Mr. Pryal tries it he will find it "works to a charm" in like manner as it does here.

The importance of having a section well built down to the bottom-bar—and that's what a bottom-starter accomplishes—is so great that it is well worth while to canvas the different things from which failure might result. It is easy to see that with a bottom-starter cut $\frac{1}{8}$ deep, and standing up $\frac{1}{4}$ inch after being fastened in, if the foundation were $\frac{1}{2}$ inch in thickness it could not possibly topple over, but *if thin enough* it would most certainly topple over with its own weight. Whether "extra thin" foundation would stand up always I'm not sure. I use "thin super," and it works all right.

One person, after considering the case, suggested that either the top or bottom starter had not been put in the center of the section. That could allow the upper and the lower force of workers to pass without meeting, but even a novice would hardly fail to put starters in centrally, and Mr. Pryal is no novice.

To another, who had had experience in putting in thousands of such starters, I submitted the case, and asked, "What's the trouble?"

Promptly came the answer, "Plain case; the hives were not level. We

level our stands with a spirit-level. Of course, if the hive leans over to one side, the upper starter will lean over just as much, and will not meet the lower starter."

"I don't think that's the right answer," said I. "Unless I am greatly mistaken, Mr. Pryal doesn't do things slovenly, but always has things in apple-pie order. Now please look at this picture again. Look at the capping in that section just a little below the

center. Are those worker-cells or drone-cells?"

"Drone."

"And what are those a little higher up?"

"Worker."

"And what does that tell you?"

"That says that the upper starter came down only half way; and I see now that that accounts for the trouble."

Of course I can't be sworn that in all cases Mr. Pryal uses upper starters only half depth, but I can take my "affidavit" that in this one case, either because the upper starter was short when first put in, or because in some way the bees tore down some of it afterward, the foundation came down no further than to the place where the drone-cells began. With a space of $1\frac{1}{2}$ inches or so between the two starters, the bees would lengthen each starter, the upper one downward and the lower one upward, and when the lower one became high enough why should it not lean over?

Some one may reply, "But I had bees build upward once, and although the comb was built up more than 2 inches high it was strictly perpendicular."

Yes, that's true, too. If you want to see bees build upward, put on an upper story at the beginning of the honey-harvest, with no frames in this upper story—entirely empty. Instead of clustering up against the cover and beginning to build there you will most likely find that the bees will think it too remote a business to begin 9 or 10 inches above, but will start to build up from the top-bars. But in every case that I have ever seen, the bees never built a comb in a straight line—always in a circular form. The wise little creatures seem to know that a straight comb built upward would not be stable, so they build in a curve. Not slightly curving, but curving enough to make a circle no larger than the top of a bowl or a tea-cup. With a straight bottom-starter there is no chance for a curve, and so when the bottom-starter is high enough, over it goes.

One of the difficult things is to follow out in minute detail any heretofore untried plan, and sometimes what may appear to be an entirely unimportant detail may make all the difference between success and failure. When so bright a man as W. A. Pryal makes a slip in this direction, it becomes the rest of us to take warning. At the same time, he is to be thanked that he has told us of his failure, and if this were oftener done the fraternity at large would be the gainer.

Reference to the first paragraph on p. 142 of "Forty Years Among the Bees" will give the missing link that, I think, accounts for our friend's failure. It there gives the depth of the top-starter as $3\frac{1}{2}$ inches, and the bottom-starter $\frac{1}{2}$. Add the two together and you have 3 $\frac{1}{2}$, and with 4 inches as the inside depth of the section there is left a space of $\frac{1}{2}$ inch between the two starters. Always the space will be in reality a little more than that, the hot plate melting down each starter a trifle.

When a section is given to the bees, the

space between starters is so small that one of the first things they do is to connect together the two starters. Even if a bottom-starter should occasionally topple over, the upper starter is so near the bottom-bar of the section that in the finished product no balk is seen.

One statement in the paragraph quoted I must repudiate, and excuse it on the ground that when I wrote it I was younger and less experienced than now. It is this: "Moreover, I think the deeper the bottom-starter the more promptly the two starters are fastened together." According to that, if the bottom-starter were 3 inches deep the two starters would be fastened together with exceeding promptness; whereas the lower starter would be sure to fall over before the bees could have time to knit the two together. Any one so inexperienced as to write such nonsense as that should not undertake to write a book. I should have said, "The smaller the space, the prompter the fastening."

Mr. Pryal, in closing, speaks of the comb being fastened to the separator. Instead of causing this, the bottom-starter, rightly used, is a sure preventive. When I used no bottom-starter, the comb was swung over and fastened to the separator with unpleasant frequency when honey was coming in slowly. There is no possibility of such a thing happening when the two starters are fastened together.

I earnestly hope Mr. Pryal may find the plan work "to a charm" if he will give another trial.

Marengo, Ill.

THE NATIONAL BEE-KEEPERS' ASSOCIATION.

How Should the Officers be Chosen? Harrisburg Convention.

BY R. F. HOLTERMANN.

Taking the train at 4:50 A.M., Oct. 29, and with a run all the afternoon among the Allegheny Mountains, and crossing and recrossing the Susquehanna River and its tributaries, I reached Harrisburg, Pa., about 5:30 P.M. The season of the year added to the beauty of the mountain scenery, and reminded me of the days of my childhood spent in the county of Renfrew, Ontario, and my trip was thoroughly enjoyed.

It has been my privilege and pleasure to see the National Association pass through many stages, also to be its secretary, vice-president, and president, and to attend its conventions, among them Rochester, Detroit, Columbus, Chicago (twice), Albany, Washington, Toronto, Brantford, St. Joseph, and now Harrisburg.

As to membership, influence, and progress it stands, in my estimation, higher to-day than ever. I believe, too, that the Harrisburg convention in some ways sounded a loftier note than ever before, and yet it was felt that the method of nominating its officers for the coming year was defective. To re-

alize this is much easier than to provide a remedy.

Realizing that one suggestion may lead to what is more valuable, allow me to offer the foundation for a plan.

Why not have the election of officers the first month of the year? State and provincial societies generally meet, or could readily meet, during the last months of the year. If they did not, they could act at any time during the year if they so desire. Why not allow every State or even every society covering a larger area, which affiliates with the National, to nominate, by election at its annual meeting, in no local spirit, either from among its own members or outside men for the various offices in the National? Let such nominations go before the electors with perhaps one added name selected, as before, being the one receiving the largest number of nominations as large as before. There may be a clause giving this privilege only to the society having a membership not to be less than a set amount, and, of course, the society would have to be in affiliation with the National. It was shown by Mr. N. E. France, the General Manager, that there was very little interest taken in the nominations by the members, and a great many did not take part in the election of officers because those running for office were unknown to them. A state nomination, while not always a guarantee of a wise selection, would be more likely to be so than when made by an individual; and I believe that, by this method, local interest and local pride would be stimulated and the National convention would grow in membership and influence.

In some of the breeders' and other associations there has been a clause inserted restricting the membership to those interested, so that they could not afford to vote for any thing which might be contrary to the interests of the industry with which they were allied. While we know of men of good judgment and good faith keeping but few bees, and having but little at stake in the industry, who would be and have been good directors along general lines, we want men first of good judgment, then interested in the success of the industry and with wide experience to represent us.

This, in my estimation, should be the fitness for office kept in view rather than some of the distinctions which have been suggested.

Let, with the nomination, the qualification be named—say John Smith, 20 years a bee-keeper; has 100 colonies. or has 100 colonies of bees and edits *Bee-keepers' Paradise*, etc.

The National Bee-keepers' Association at the Harrisburg Convention was pursuing, in my estimation, not only a legitimate but a wise policy when it asked that every Federal, State, Dominion, and Provincial government be asked to get into shape proper machinery to carry on apicultural investigation and to bring bees and honey before the people.

Pennsylvania bee-keepers realized the value of field demonstrations as they had them last summer to draw attention to the product

of the bee; and in the no distant future we may look forward to the development of the valuable asset which bee-keepers have in the interesting demonstrations that bee-keepers can make in connection with the natural history of the bee and the way in which bees can be handled.

Prof. Phillips, of the Department of Agriculture, gave an address containing many valuable practical points for bee-keepers upon the production and care of extracted honey. Dr. Phillips, if he is careful to confine himself to the proper work of his department, especially with growing experience, added years, and proper equipment, should be able to do valuable work for the bee-keeping industry of the United States and other countries.

President Aspinwall justly said in his address, "Bee-keeping is the greatest of all agricultural subjects when we consider the various branches of agriculture which are involved. When we consider the need of knowing the life history of the bee, its work, the methods of producing wax, a bee-keeper should be a botanist and an entomologist." Father Langstroth said that bee-keeping is the most beautiful science in the whole rural economy.

Let the actions and demands of the National Association be in harmony with the importance and dignity of such a calling.

Brantford, Canada.

WINDBREAKS.

How to Make Canvas Shields when there are No Trees or Shrubbery to Shelter the Apiary.

BY A. J. HALTER.

When the forest is being deprived of its foliage it behooves the bee-keeper to make final preparations for wintering bees, especially those located in the northern regions.

A great many bees are placed in cellars, and some in trenches, while a large part are left on their summer stands, in which case windbreaks are of great value. However, for some reason these windbreaks are greatly neglected, lumber and labor at times being quite an item.

The past two seasons I have used canvas, such as is used on harvester machinery or straw-carriers, and find it quite durable. It is from 4 to 5 ft. in width. A great many binders or farm machinery are yearly sent out on trial, and are returned, slightly used, to their respective agencies. The canvas, however, is generally replaced before the machine is again offered for sale. This canvas can be purchased at a reasonable price, and by giving it a coat of oil it is made waterproof.

When the bees are all packed for winter, drive a few fence-posts and tack the canvas against the posts for several hours, and the work is done. During summer remove the canvas and roll it up until again needed for future use.

Bees wintered in cellars by all means should be protected by windbreaks when set out in spring. During March and April, bees that fly out in search of pollen or water become chilled by the cool winds, and are lost in great numbers within a few feet of their hives. This has a tendency to weaken the colonies, causing what is known as "spring dwindling." When windbreaks are provided, bees do not come in contact with these cool currents of air unless they venture a certain distance; and when returning home they are apt to arrive more safely when once within the boundary limits of windbreaks.

The past season has certainly proven the value of protection against wind and chilly weather.

A few dollars spent in this direction will be a great benefit to the bees. Now is the time to make preparations.

Akron, O., Nov. 11.

QUEEN-REARING.

Alley Plan for Obtaining Cells Preferred; Queens Mated from Nuclei over Strong Colonies; Advantages of Sectional Hives for this System; How to Requeen without Having them Queenless at any Moment.

BY J. E. HAND.

In an article in *GLEANINGS* for May 15 I made the statement that not the least of the influences that produce swarming is an aged queen, and that requeening the entire apiary prior to the main honey-flow would go far toward preventing swarming. I am convinced that a great deal of my swarming troubles have resulted from a desire on the part of the bees to supersede their queen. Since the article above referred to appeared in print I have been asked to give a detailed description of my method of requeening the entire apiary in the spring, hence this article.

As soon in the spring as our colonies are strong enough to occupy three sections of our brood-chamber we will begin operations by getting our cells started in strong colonies made queenless for this purpose. I will not go into detail to describe our method of securing queen-cells. Suffice it to say we prefer the Alley plan, believing that, as a rule, better queens can be reared by this plan of getting cells started than where the larva is transferred with a spoon, especially by the novice in queen-rearing; for I have noticed that, whenever a larva is disturbed and placed in a bed of royal jelly in a prepared cell, by the bungling hand of the novice, the bees will invariably lick up the feed, leaving the transferred larva high and dry, and the future queen will be injured in proportion to the length of her fast while in this state.

Having secured a bunch of natural queen-cells built over larvæ from our choicest breeder, the next thing to do is to prepare our nuclei for the hatching and mating of our queens; so we will go to each colony that we wish to requeen, and remove the top brood-

section containing bees, brood, and honey, being careful not to get the queen, and place over the top of the next lower brood-section a wire-cloth screen, and on the top of the screen we will place a queen-excluding honey-board, leaving a slot cut out of the upper edge of the rim $\frac{1}{2} \times 2$ inches, near the corner furthest from the entrance to the hive, and on this honey-board we will place the top brood-section. The slot cut in the rim of the honey-board is for an entrance to the top brood-section, which is to be used for a nucleus.

We are now ready to insert our queen-cells. This is done by enclosing the cell in a cell-protector and pushing it down between the combs in the center of the nucleus. As soon as the young queen hatches out and begins to lay nicely the wire cloth is removed and the bees are allowed free access to both queens through the honey-board. The young queen is now given the two lower brood-sections, while the old one is allowed to continue operations in the top one until time to put on the supers, when she is promptly killed.

By this method good queens can be reared much earlier in the season than by the methods in common use with the full-depth frame hives, since the heat arising from the colony below will keep the nucleus warm. Since nearly if not all the honey will usually be in the top brood-section in early spring it will be necessary to feed the colony below unless there happens to be a honey-flow.

When we used the honey-board alone between the hive and nucleus a good many of our young queens would all at once be missing; but since we combined the wire cloth with the honey-board we have had no further trouble along this line. By this method the entire apiary can be requeened without any loss or inconvenience to the colonies treated, and no expense for mating-nuclei or other traps.

Birmingham, Ohio.

[This plan of requeening so as not to interrupt egg-laying in a colony we believe to be excellent. But we think our correspondent overestimates the danger done to a larva after it has been transferred to an artificial cell cup. Of course it is possible a bungling manipulator in a cold atmosphere might do harm. But if one follows carefully the directions that are given no bad effect should follow.—Ed.]

NAIL-BOXES.

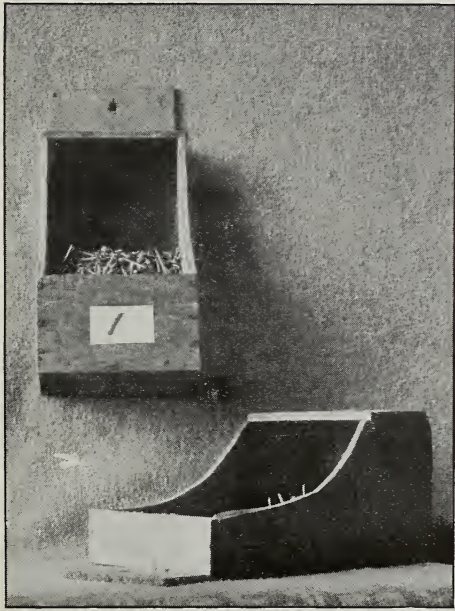
BY DR. C. C. MILLER.

A bee-keeper is likely to use a good many nails, and a good many kinds of them. It makes a difference what he keeps them in when not using them—also what he keeps them in when using them. One of the most inconvenient ways I can think of is to have them tied up in a paper, untying the paper and picking each nail out of the paper till he has used all he wants, and then tying up the paper again, putting it along with a lot of

other papers of nails, so that each time he wants to use any he can open paper after paper till he finds what he wants.

Instead of picking each nail out of the paper it's an improvement to take a mouthful at a time, or to scatter a small quantity at a time on the bench, or put them on a plate; handier to pick up when a little scattered; but when on the bench they have a way of scattering more than you like. A plate has a way of landing on the floor upside down.

Now look at the two nail-boxes in the picture. I got the idea from seeing, at a tinner's, boxes made on the same principle, only made of tin. I hardly think I need tell how they are made. The picture tells that. But it may be no harm to give measurement of parts, although one can make boxes larger or smaller. Quarter inch stuff is used, and



CONVENIENT BOXES FOR HOLDING NAILS.

the different pieces measure: $10\frac{1}{2} \times 4\frac{1}{2}$; $4\frac{1}{2} \times 4\frac{1}{2}$; $4\frac{1}{2} \times 3$; $4\frac{1}{2} \times 1\frac{1}{2}$; and each side is $8 \times 4\frac{1}{2}$, cut out as you see.

Take down a box that is hanging up; lay it on its back and give it a few shakes, and you have the nails scattered out nicely in the shallow part, unless the box is too full. The box hanging up is too full, but I wanted the nails to show in the picture. When through using, hang the box up on its nail on the wall, and it's there without any danger of tumbling down and taking up the least possible room.

I made a dozen such boxes, hung them up on the wall of the shop in two rows, one row above the other, each box marked to show the kind of nail in it, with a corresponding mark at its nail on the wall, and was happy.

Alack and alas! my happiness didn't continue. Some one took a box from the shop and didn't return it to its place. Then some nails of the wrong size were thrown into the box rather than throw them away. Then another box was similarly maltreated, and thus it went till the boxes were scattered to all points of the compass with all sorts of nails, and some things that were not nails in them.

Moral: Shoot the first man that meddles with your nail-boxes.

Marengo, Ill.

IS PARTHENOGENESIS A MYTH?

Some of our readers may not know what the Dickel theory is, so that, by way of a preface to what here follows, it may be stated in as few words as possible thus: Fertile queens only lay fertile eggs. The worker-bee alone determines the sex. The worker-bee makes the sex by means of a glandular secretion which is supplied at a certain stage of the larva, and this is continued till the latter is sealed up. He admits that the eggs of laying workers and drone-laying queens are from unfertile eggs, but he holds drones from these are lacking the procreative powers.

The article which follows is a translation of a criticism of Prof. Kuckuck's new book entitled "There is No Parthenogenesis," a work that defends the Dickel theory. This criticism of the book appeared in *Bienenzeitung* (Leipsic). It is evidently the work of an expert on the subject.—W. K. M.

With zeal worthy of acknowledgment Dickel tries to obtain support from the scientific world for his opinion that all eggs laid by an impregnated queen are also impregnated, and that the salivation through the bee not only starts life in the impregnated egg but also influences the sex; which means that parthenogenesis, in the sense established through investigation by von Siebold, is untenable. The Russian physician, M. Kuckuck, with his present pamphlet, wants not only to prove the correctness of Dickel's opinion, but wants also to refute fully parthenogenesis. He wants to prove that also the drone eggs laid by bees must be impregnated, and that with male sperm derived from the drone, because the development of these drone-eggs shows all the characteristics of impregnated eggs. Unfortunately neither Dr. Kuckuck nor F. Dickel furnishes the proof nor even the slightest intimation how the impregnation of these eggs is or could be done.

This doctrine at present is only an analogical conclusion from generalized laws as observed by different scholars on other organisms, and it is up to the reader to form his own opinion as to the possibility of these laws to be applied also to the bee. But even if any such possibility must be considered as out of the question for other (anatomical) reasons, that does not matter to the two authors; they simply say, "According to our opinion, which is confirmed by results from researches, the drone-egg must be impregnated."

This is the weak point in their conclusion. The direct scientific proof of how the male sperm comes into the bee-laid egg, whether through impregnation of the bee by the drone or through impregnation of the egg with

sperm, is not furnished nor is any attempt made to furnish it. All these details condensed form the following by no means scientifically confirmed assertion:

Drone-eggs laid by bees show exactly the development which has been universally accepted as the rule with impregnated eggs of other organisms; consequently drone eggs also must be impregnated, and parthenogenesis is nonsense.

This is a similar analogical conclusion; as, freezing water expands, forming crystals; crystallizing honey also expands; consequently honey must be water.

We want to state right here that Dr. Kuckuck opposes a perception of parthenogenesis which originally could not have been existing, because every supposition for such a perception is missing. Hitherto under "parthenogenesis" was understood the origin of animalcules from female eggs not impregnated with male sperm.

This doctrine he believes to have been fully refuted by proving what nobody denied; viz., that every egg, even from an unimpregnated mother, contains some remainder of male-sperm substance; wherefore it is not possible to speak of unimpregnated female eggs, since the same, according to their origin, must be hermaphroditic. We bee-masters have the same idea always expressed with a sentence perhaps less scientific but more intelligible—drones have no fathers, but grandfathers, and just for that reason we take them to be of virgin birth; viz., parthenogenetically begotten.

We believe that Dr. Kuckuck's argument, in the first part of his pamphlet, has changed nothing of this fact, as he himself must confess that life can be produced even through physico-chemical processes from non-impregnated (i. e., not with sperm-fertilized eggs of the barnacle.

Whether from this artificial impregnation perfect or imperfect animalcules originate is of no importance whatever so far as our question is concerned.

That development commences at all—that cell-parting begins—is a parthenogenetic occurrence.

Dr. Kuckuck's demonstrations finally return to Wiesmann's doctrine of the continuance of the germ-plasmas, and offer little new to men well acquainted with this subject. The following are the main points of our question: Every female egg and every male sperm is hermaphroditic; i. e., consists originally of female and male generating substance. The female egg-cell forms in her future development either one or two pole-bodies, the last one being nothing else than the originally male substance. If the egg-cell forms both pole-bodies before the impregnation, it will be lost without artificial influence. Under normal conditions the egg-cell will be impregnated after forming the first pole-body. The new male sperm causes the forming of the second pole-body; i. e., it expels the old male germ, but also egg-cells exist which do not expel the second pole-body, which also do not receive any sperm,

but which notwithstanding are developing. These eggs have retained the old male germ, and are, consequently, if we may say so, old impregnated, and usually develop into females. (Kuckuck declares that such eggs are only erroneously named "parthenogenetic.") Evidently he is referring to an absolutely different conception of parthenogenesis. First he constructs a new conception of parthenogenesis only to refute it afterward.

The female substance is always charged negative-electric, the male substance positive-electric; thus causing the attraction of both (the mutual searching and finding by egg and sperm).

The stronger electric energy decides the development of the sex; i. e., so far as bee-eggs are concerned. If the sperm is more strongly charged than the egg, a drone will originate, and, in inverted order, a bee or queen will be developed.

Now, from these facts should be concluded that drones by drone-mothers must originate from sperm-impregnated eggs, otherwise not drones but females would be developed. But simultaneously this would be a direct refutation of Dickel's doctrine that the male germ-substance is the bearer of the female sex-tendency, and *vice versa*. This is not mentioned at all in the present pamphlet. Does Dickel now disown this, his previous pet idea?

Sentences 26 and 27 on page 34 of the book contain a sharp refutation but not a proof of the original Dickel doctrine.

Dr. Kuckuck, in the second part of this book, treats Professor von Siebold and Dr. Petrunkevitch very harshly.

We admit there is many a thing to say against the research methods and results; but against Dr. Kuckuck-Dickel's observations it must be objected that they lack impartiality.

Note only this: "The dogma of parthenogenesis in its entire extent is based only and alone on illusions of two investigators."

When Professor von Siebold, in consequence of a defective method, could not obtain any results, and when Dr. Petrunkevitch, in consequence of the wrong application of a better research-method, arrived at false deductions, these are human errors to which certainly Dickel and Dr. Kuckuck are also subject. Should not Dickel and Dr. Kuckuck perhaps also have every reason to ask themselves how their doctrine of the eternal and unchangeable law (page 43') stands to reason: The negative (female) attracts always the positive (male); the positive repulses the positive; the negative repulses the negative," considering that the female queen and the female brood-bees attract themselves strongly, whereas, charged with identical electric energy, they should repulse each other? Right here this "eternal, the whole organic governing law" falls to pieces, and with it the greater part of the conclusive force of the whole book which is almost exclusively based on this law.

Not being experts we can not discuss the

microscopic-technical questions; but we hope that acknowledged authorities, such as the renowned cell-investigators Professor Th. Boveri and O. Hertwig, will not withhold their opinion.

In the third part Dr. Kuckuck tries to prove directly the "being impregnated" of the drone eggs. Our layman's understanding judges this part to be the weakest, the conclusive force of the same being absolutely null. Dr. Kuckuck has only ascertained that, in the state of progressed development (*Blastulastadium*) the nucleus of the cell of the embryo of the bee, the queen-drone and the drone are equal in size, consequently also equal in number of chromosomen, and that this, according to Professor Boveri's doctrine, furnishes the best proof for the equality and the being impregnated with sperm of the three kinds of eggs.

This singular assertion suppresses, however, that under "being impregnated" could be understood either old impregnation (i. e., parthenogenesis as hitherto conceived), or new impregnation (impregnation of the queen by a drone, and, consequently, impregnation of the eggs with sperm).

By no means has this research ascertained what really must be expected in case it should be proved that parthenogenesis does not exist; to wit, that the drone-eggs are without exception new impregnated; that means with the sperm from a drone-impregnated queen or from a bee; because nobody has ever seriously claimed that every drone egg also contains male substance from the grandfather (old impregnation), even if it were not known, that the last remainder of it in the female egg cell is either expelled in the second pole-body or, when not expelled—can result in parthenogenetic development of the egg, in the original sense of the word. This is the only news which we can find in this book; but the news itself is only an heirloom from Weissmann's germ-plasma theory, which, as is well known, is not generally accepted.

The forming of two pole-bodies by the drone egg has not been personally observed or above all doubt ascertained by Dr. Kuckuck himself, but he bases this assumption on firm assertions by Dr. Petrunkevitch, whom he so thoroughly refuted, as well as on assertions by Dr. F. Blochmann. But he himself has pointed out how uncertain and difficult egg-researches are, and how easy wrong-seeing, and, still easier, wrong conclusions occur.*

Therefore, when Dr. Kuckuck, notwithstanding the great uncertainty of such research methods, from the equal size of the cell-nucleus of the bees' blastoderm cells concludes the reception of sperm by all, even

by bee-laid drone-eggs, this conclusion is without force inasmuch as the proof is not furnished how the sperm came in contact with the drone-egg, which is maturing in the bee.

The discussion of this most important question certainly should have been taken in consideration; and since this has not been done, really the entire demonstration lacks proof; because, if the drone-egg expels only one pole-body, the development can proceed in exactly the same manner either through old impregnation or through new impregnation (page 31, sentence 10); in other words, the result of this research is null.

Every thing remains unchanged, and only Dickel's own principle of the forming of the sex, according to which the female egg should be the bearer of male qualities, and the sperm the bearer of female qualities, has been thoroughly refuted by Dickel-Kuckuck.

Finally, we want to emphasize that Dr. Kuckuck finished thoroughly the doctrine of the "arbitrary" sex determination, because, according to him, the sex-tendency is influenced through the greater or less electric charge of the female or male nucleus-substance, and nobody can consider electricity to be an intellectual power which arbitrarily determines the sex of the bee-eggs according to the needs of the stock.

The electric charge is probably only the consequence of chemico-physiological causes; and here we arrive at the much disputed, because so little understood, question of the food-juice doctrine.

Who would have expected this? Every thing brought forward, which shows conclusive force, only confirms our own ideas regarding the organism of the bee; yet these ideas, according to certain judgments, can not be taken seriously.

For this support we are obliged to Kuckuck-Dickel.

WINTERING.

How do Bees Pass that State of Inactivity, or Rest, during Winter, Described by Dr. Dzierzon in Allgem. Zeitung für Bienenzucht?

BY F. GREINER.

Honey-bees, like other creatures, have their time of activity and inactivity. They rest when vegetation comes to a standstill, when no more blossoms are found, the pollenizing of which is their principal mission. A few cleansing flights excepted, bees remain quiet, although the weather may seem warm. When cold weather comes they behave much like other creatures. They pull in their extremities in order to expose as little of their body as possible, so that but little warmth may be lost. When it becomes extremely cold, the bees not only occupy the spaces between the combs, but also fill up the cells, which is so natural that hardly a word need be said to affirm this. It would not be a compact cluster if only the half-inch spaces

*By the way, from the point of view of a practical bee-observer we should like to propose the following question, which evidently did not occur to Dr. Kuckuck for lack of knowledge of the bee-life but which Dickel, the bee expert, could have considered very well: Why is it that a drone-brooding bee-stock does not resort to its last resource to change to a queen a drone-egg which, according to Dr. Kuckuck, is homogeneous to any bee-egg? Why do they perish, when they can save themselves by the simple and certain Kuckuck-Dickel method?

were filled with bees and the inch-thick combs stood empty. A cluster thus divided by spaces would freeze in a little while during extreme cold. As simple and as easy as it is to find out this matter, there are still some who do not hesitate to contradict, unreasonable as it seems, these facts. They even assert that, at the last moment before death occurs, they will crawl into the cells, when it is well known that all animals, when dying from cold or starvation, remain in the position they last occupied. As the combs would give room for twice as many bees as the space contains, these spaces would have to be entirely empty of bees if they had crawled into cells at the last moment. On the other hand, if one examines a starved and chilled colony, not only will the cells be found full of bees but also the spaces between the combs to the extent of the cluster. This is an unmistakable proof that the bees must have taken their position in the combs and in the spaces when all were in full possession of strength. I am not assuming anything, but I have time and again taken colonies apart during cold weather and found them just in this condition. One may then plainly see that there are more bees in the cells than there are in the spaces.

It is of importance to know this behavior of our bees during cold weather. The reason why late-fed bees (with liquid food) usually winter poorly is, therefore, apparent. If the late-fed syrup is not consumed before winter comes, the bees have a cold seat, for they can not crawl into the cells as they would if that honey were not there. The same is true when there is an excess of pollen stored in the brood-nest as is often the case with such colonies that have been queenless long.

An American (Heddon) advanced the idea that pollen is the cause of diarrhea in bees. This must be a mistake, for bee-bread is strengthening in itself. Not the eating of pollen may have caused the propounder of this theory to come to such a conclusion, but the position that the pollen was in, causing a cold seat and thus the diseased condition of the bees.

It is a dangerous practice to try to winter a colony with pollen in the brood-nest. The combs must be empty. If necessary they must be removed.

The next question is, "In what manner shall we feed the bees in mid-winter?" When no more open unsealed honey is at hand inside of the cluster the bees provide themselves with honey according to the temperature, either by bringing it from distant combs, particularly from the lower edges of combs, or when too cold for that from the sealed honey-cells at the upper edge of the cluster. Some have an idea that there is a gradual working-up of the bees—a sort of rotary movement; but I incline to the belief that the food is passed down by the bees that are at the honey, to the hungry sisters. The question might be asked, "How much honey may a bee take at a time?" Probably only very little, for its body is always slender and

short unless its contains an undue amount of fecal matter; and when this is the case it can not possibly take a very large amount of honey. There is not room.

Naples, N. Y.

IMBEDDING WIRES IN FOUNDATION.

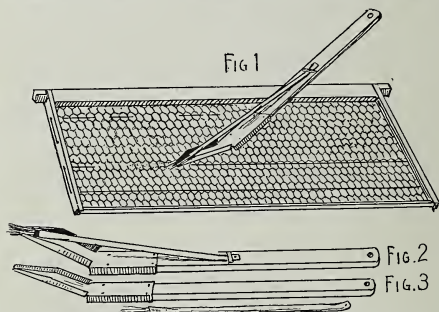
Waxing the Wires with a Brush and Spoon Combined.

BY E. F. ATWATER.

When full sheets of foundation are used in wired frames it is always desirable to put the frames in use soon after the imbedding is done, or the wires are likely to cleave away from the sheet of foundation, and this is especially likely to occur when such frames of foundation are hauled to outyards.

As the spur wire-imbedder comes so near to cutting the sheet of foundation in two, we have, in the past, found it better to use the old Easterday rocker wire-imbedder to avoid occasional trouble from the sheets breaking or pulling apart where the imbedding had been done.

Now we find it safe to use the spur imbedder, and the sheet of foundation will never pull apart at the wires. It is now our practice to wax the wires in place after imbedding them into the sheet of foundation. This



insures that they will stay imbedded, whether used this year or next; aids in preventing sagging along the wires, making that line (usually the weakest) the strongest place on the sheet of foundation. Frames with sheets of foundation so prepared are especially good for hauling to outyards and over bad roads.

Our older methods of waxing the wires in place were faulty. With a brush the brush would not carry enough wax; with a sharp-nosed tin spoon with a small notch in the end it was difficult to follow the wire and to regulate the flow of wax. During the spring of 1906, Mr. H. E. Crowther and myself originated the plan of combining the spoon and brush, as illustrated herewith.

The sheet of foundation, with wires imbedded, should be supported on a slant, then with the combined spoon and brush it is an easy matter to wax the wires in place; easy to follow the wires; easy to regulate the flow of wax, and the spoon easily carries enough wax to finish one or more wires without

stopping to dip again. Don't imagine that an exceedingly light coating of wax is required, neither should it be used lavishly.

This little tool is easily made, and should be on the list of supplies. Perhaps the brush can be combined with the Van Deusen wax-tube, though we prefer the pointed spoon as shown.

Fig. 1 shows the complete spoon and brush combined, ready for use. Fig. 2 shows the parts—the brush and the spoon.

The spoon without the brush is the simplest tool to use when we want to attach either starters or full sheets of foundation to plain top-bars. It is the "Onderdonk spoon," as described in the *American Bee Journal*

(8×20 rods) for 25 years with families living on three sides, and one side, eight rods, fronting the road, and one man's barn less than four rods from where I stand, and never yet has there been any complaint about the bees, and no person or animal has ever had a sting from a bee.

I produce several tons of comb honey every season, of a good quality, and which finds a ready sale at good prices. I make a specialty of comb honey. Many times it has been placed on exhibition at our State fairs, and in every case it was awarded the first prize. I also produced the 125 lbs. of comb honey that Utah had on exhibition at the World's Fair at St. Louis.

WHY MY BEES DO NOT MOLEST NEAR NEIGHBORS.

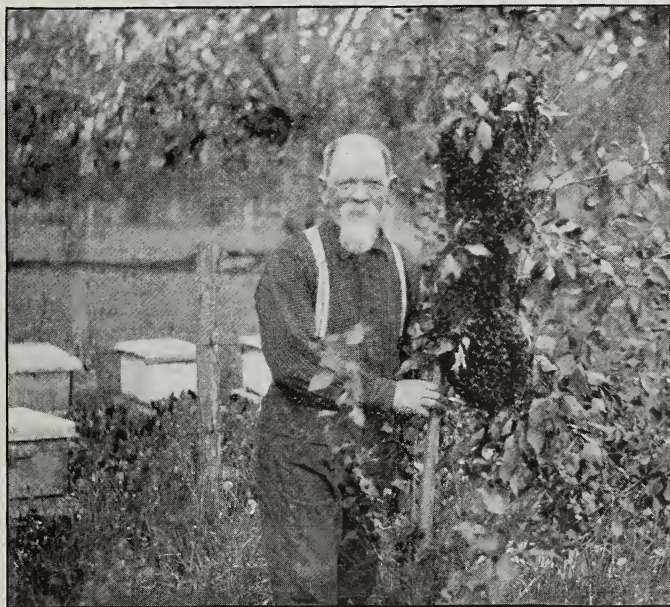
I have handled bees most of my life, and never had them get angry and attack people or animals that come near or pass by. I never work with them in the heat of the day. In every case I put on supers in the evening. I use the Porter bee-escape; and when a super is full and another is to be put on I place a bee-escape on an empty super, remove the full one, put on an empty one, then put back the full one on top of the bee-escape, and bees will pass down through the bee-escape into the empty super, and go right to work, and no time lost.

Right here let me make one suggestion to beginners. As a rule their yards number from one to six colonies; and when their honey is to be taken

away it is done in such a way, and in the heat of the day, that bees get fighting mad and remain so for days; and any person or animal that comes within reach they attack; and in some cases we read of horses being stung to death, and on inquiry we find in every case it is done by such bees or yards as I describe. I believe if we study the bees well, and handle them carefully, it would save us time, save bees and honey, and avert lots of stings.

Smithfield, Utah.

[We wish particularly to indorse the suggestions of Mr. Cragun on how to prevent bees from making trouble to neighbors. If more bee-keepers practiced what he preaches here we should hear less about bees and neighbors.



THOMAS C. CRAGUN, OF UTAH, AND THE SWARM HE CAPTURED.

This shows only a corner of an apiary of 146 colonies which is surrounded by dwellinghouses. It is interesting to know that none of the neighbors have ever been stung.

years ago. It is also perhaps the best tool to use when we fill sections with foundation fastened on three or four sides—a plan that I discarded after years of trial and experiment.

Meridian, Idaho.

A UTAH APIARY SURROUNDED BY DWELLINGHOUSES.

An Extensive Producer who Manages his Bees in Such a Way that No One is Stung.

BY T. C. CRAGUN.

My apiary of 146 colonies, a part of which is shown in the engraving, is located in Smithfield. I have kept bees on this ground

Mr. Cragun writes further that he has considered giving a demonstration with bees at the next State fair in Utah. Our experience shows that this plan proves to be a great attraction at any fair, and is, therefore, a good advertisement. Many will buy more honey if the general subject of bees is clearly brought to their attention.—ED.]

INTRODUCING QUEENS.

A Modification of the Alexander Method.

BY CLARENCE A. HALL.

I think the plan of introducing one or more queens in a colony of bees, as given by E. W. Alexander, Sept. 1, is a great advance in bee-keeping. I shall never try again to introduce a queen by the directions that are tacked on the queen-cages. When GLEANINGS for Sept. 1 came to hand, I received at the same time two queens. After reading the article by Mr. Alexander I determined to introduce my two queens by his plan.

Mr. Alexander says, "It will not do to omit any part." Now, when we only requeen in this way I claim we can make some changes, for I did, and yet the plan worked like a charm; and this is the part of the plan I violated: I left all combs of honey and brood in the hive, took nothing away but the old queen and the bees in the introducing-box. I then, of course, could not set the introducing-box with its bees and queen in the hive, so they were just run in at the entrance. This act was timed to come after dark, because of robbers; for the same reason a bee-tent was used when hunting for the old queen. Two colonies were requeened in this way. They are the crossiest hybrids I ever saw.

It is the best plan I ever used, for we can requeen at any time of the year without fear of weakening our colonies, because the bees are queenless only a few hours at most, and they work like new swarms the next day.

Covert, Kan.

[Upon receiving the above letter we sent it to Mr. Alexander for any comment he might wish to make. His reply follows.—ED.]

In connection with the success Mr. Hall has had in introducing queens as he describes in the above, a few words of explanation from me may not be out of place. Yes, it saves some time and labor to let the combs and brood remain in the hive and simply allow the queen or queens with the bees from the introducing-box to run in at the entrance; but with us it was not always a success. When we practiced that way we lost about a tenth of the queens. That was why, one year ago, I wanted to test the introducing of a plurality of strange queens to a colony another season before making our method public. When we have a surplus of ordinary queens we take our chances and leave the brood in the hive, and let two or more queens run in at the entrance with the

bees from the box; but with valuable queens I should much rather remove the brood as recommended in GLEANINGS for Sept. 1. In that way we have never lost a queen; and if I had one that had cost me \$100 I would not hesitate to introduce her as I there advised. There certainly is a great difference whether we attempt to introduce a strange queen to bees that have gorged themselves with honey, or whether they are somewhat hungry; therefore when introducing as friend Hall did I think it will be much better to give the colony a few puffs of smoke and jar the hive somewhat so the bees will fill themselves with honey before letting them and the queen or queens run in from the introducing-box. We found this to be much the safest way when the brood had been left in the hive. Although it is now late in the season I frequently receive letters speaking of introducing a plurality of queens with marked success, as recommended in the Sept. 1st issue.

The main and most vital part of this method seems to be in introducing the strange queen to about a quart of bees that are well filled with honey after they have been taken from their parent colony a few hours, and keeping them a few hours longer with the queen you wish to give to the colony. This gives the queen the odor of the colony, and the bees don't seem to realize but that it is their mother queen. All the rest is but secondary to this main part.

E. W. ALEXANDER.

Delanson, N. Y., Oct. 14.

PLURALITY OF QUEENS.

Another Plan for Introducing Two or More Queens to a Colony.

BY "CRUADH."

Ever since Mr. Alexander's article, p. 473, I have watched your columns carefully with the expectation of seeing his promised subsequent article. Others, too, at your request, have given their experiences, but, like Mr. Alexander, all have refrained from detailing their methods. The writer far from wishes to "tread on the tail of Mr. A.'s coat," as they say in Ireland; but as the season is advanced I am to-day giving a method—the best of the many possible ways by which this object may be attained, so that it may be tested at the Home of the Honey-bees.

We are daily using this "Cruadh" (so called) method of introducing, which is an infallible means of introducing any queen to any colony, and that, too, in a way which not only embodies all Mr. Alexander claims, but more also, for the introductions, even in plurality, never fail. There is no necessity for removing the old queen; the work of the colony is in no way impeded, and the new queen or queens will be laying in just about the 18 hours mentioned. The whole is so painfully simple that no one could make it

fall—indeed, one feels almost ashamed, and inclined to apologize for its simplicity.

Get an empty ordinary full-depth top-story and bore a $\frac{1}{2}$ or $\frac{3}{8}$ hole in the middle of the lower front to serve as an entrance. Get out two wooden division-boards $\frac{1}{2}$ in. deeper than your ordinary brood-frame, and cut to length to slip into the top story, and yet not allow room for a bee to pass around the ends. Cut a piece of wire-screen cloth the same length as the division-boards by, say, $3\frac{1}{2}$ or 4 in. wide, and tack it on to the lower edges of the two boards, thus forming a species of cage.

Put a *laying* queen into a transfer-cage in your pocket, and take with you a small common wire introducing-cage, say 2 inches square, with one side open to press on to a comb. Go to any colony working in a full-depth top-story for extracted honey. Take off this top story, set it aside, and substitute the prepared one, with cage fitted, which you brought. Transfer to the latter as many of the extracting-combs, bees and all, as it will hold, leaving the cage empty, of course; then select one comb of just-hatching bees, and place it, bees and all, in the cage, together with another comb, either empty or full of honey or hatching brood. Let your new queen on to this, and cover her with the small cage (over food), pressing well into the comb, and then put the frame, etc., into the cage. Cover the division-board cage, containing these two frames, with a piece of cloth so as to prevent other bees from getting in; but leave the hole in front open so that the *old bees* can get out. Close the lower hive and put on the prepared top story and cover. The first thing next morning, let out the queen. See that she is received. In doing so, do not be in too much of a hurry about replacing the cloth, for your object is to get rid of any flying bees that may still remain. Close the hive again. In another six hours or so she will be laying, and, *if so*, remove the top story, hunt the old queen, pick up the new queen, and place her on the same frame, watching the result for a minute or two, when the frame with the two queens may be put down below. Your cage in the top story is now ready to take another queen, to be let out twelve hours later, and so on.

In the whole business there is but one *don't*; and that is, *don't* put the new queen down below until she is laying, and then you need have no fears. Also, instead of replacing the two queens on the one frame we would put one on each of the outside combs, thus being as far apart as possible when first put down among the bees. Of course, try them together, as first suggested.

I can and do considerably shorten the time and details required for introduction, but have given here the whole *modus operandi* so there may be no accident with a test case. Once your queen has the colony odor, and is laying, she will always be received instantaneously. Unfortunately, this is really nucleus-forming on a temporary scale, and also requires a little furniture. This

latter, however, is not useless; indeed, these division-board cages are just about the most useful articles we have in our yards, where they are in constant requirement for many other purposes. Four or more queens may be put down at once by tacking screen cloth right over the bottom of a top story, dividing with division-boards, and holes for the required number, and going ahead as before. As previously mentioned, if you mate from top stories, as you should do, no introduction is necessary. In requeening by this method your new queen is laying before the old one is removed, so no time is lost. One caution: Be sure your division-board cage is bee-tight all over—sides, top, and bottom.

Ballyvarra, Ireland, Aug. 5.

THE PLURAL-QUEEN SYSTEM.

More Honey than from the One-queen System.

BY JOHN SHERROD.

When I saw Mr. Alexander's article last spring on the subject of a plurality of queens in one hive I was very anxious to know how it was done; so I went at the problem myself, and succeeded in putting two queens in each of ten colonies. I got them in about June 15. There was no honey-flow here until about July 15. Five of the two-queen colonies are in ten-frame hives and five in eight-frame sectional hives, similar to those described by Mr. J. E. Hand. Queen-excluders are between the two sections of the latter.

In getting two queens in the ten-frame hives I follow this method: When a swarm comes out I put the frames and bees left in a hive, five combs on each side of a division-board. Entrances are made at opposite ends of the hive.

As soon as there is a laying-queen from the queen-cells on each side, I take out the division-board and substitute one made of queen-excluding zinc. When the colony becomes strong I put on a ten-frame hive with full sheets of foundation.

Each colony commences to work on the outside frames, and gradually works to the center, when, I suppose, they make friends, as I put on supers after that, and they commence in the center, as all colonies do. They make more honey than one-queen colonies with the same showing.

Now, those queens could get together, if they wished, before I put on supers. One did get around the division-board, and both queens were on one side. The bees on the other side had started a queen-cell, and it was nearly ready to hatch when I found it. I put the queen back, and in two hours I saw the young queen from the cell lying in front of the hive.

I intended to divide these double-queen colonies and make two colonies about Sept. 15.

Later.—In one or two cases I put a virgin queen on each side in the ten-frame hives. As soon as they were fertile I replaced the division-board with a queen-excluder.

In one other hive, after the division-board had been in place two days I put the old queen on one side. Cells had been started on the other side, and these I removed and allowed a newly hatched virgin to run in. After she became fertile I took out the board and put in the queen-excluder. I notice that the old queen is now missing, but both of them worked together all summer.

On Sept. 15th I divided three of the ten-frame colonies and made six, each having a queen.

Fruita, Colo.

[The plan here described is one that we have worked in our queen-rearing yards a good many times. The same principle has been used by Mr. Alexander, and is, in fact, used by several others; but instead of a perforated zinc division-board in one brood-nest, two stories are used with a perforated honey-board between. There is no trouble in working the two-queen system in connection with perforated zinc; but the problem is not so easy of solution when it is not used. —ED.]



GOVERNMENT CONTROL OF BEE TERRITORY.

Dr. Miller's Stray Straw on control of territory, in GLEANINGS for Sept. 15, it seems to me, is a *stray* Straw indeed. The case of the stock-raiser, which he instances, is not a parallel one. The stock-raiser either owns the pasturage, rents it, or is a trespasser, and liable to ejectment. He does not by legislative enactment occupy territory owned by another without the owner's consent. If the doctor can manage in some way to hopple his bees, by clipping their wings or otherwise, so that they may be kept within his own boundary, or if he can manage in some way to grow wings on the stock-raiser's cattle, so they may roam indefinitely, he will have produced a parallelism.

Looking at the "bread and butter" side of the question, how about the poultry specialist and fruit-grower specialist, as well as every other specialist? Let us have a "square deal," and ask for legislative protection for Mrs. Wigg's cabbage-patch, Pat's potato-patch, and every other special patch for the production of "bread and butter" which may be, in some way, adversely affected by the farm production of the same article of commerce. Why not? On reflection, there are so many objections to thus paternalizing the government that I believe after all we'd better not do it.

Just one thing more which I can not allow to pass unnoticed; viz., "pastime bee-keep-

ing." I can not think (or, rather, may I not say I *know*?) that brother Miller does not mean to insinuate that my conclusions on the subject of control of territory are the result of "pastime bee-keeping;" but if "bread and butter" were the object I'd reason differently. It may be that that's the way of the world; but it suits me to be a little odd in that respect.

WM. M. WHITNEY.

Lake Geneva, Wis.

THE MASSACHUSETTS BEE-KEEPERS' ASSOCIATION; THE FIRST MEETING OF THE SEASON.

We held our first meeting for this season in the Ford Building, Boston, Nov. 21. President Farmer presided. Our secretary read the reports from the former secretary, Mr. Fogg, which were very pleasant to hear, giving an account of the field meeting which was held at Mr. Adams' place in Byfield last August, at which there was a good attendance, and which was enjoyed by all present. Mr. Farmer was chosen president of the society for the ensuing year at this field meeting, and a new lady secretary was also chosen. Our next regular meeting will be the first Saturday in December in the *evening*. As there are to be only six meetings, the society, or its members, voted to have half of them in the evening. This society has quite a number of members; and, with its good constitution, it is hoped there will be an increase. There were fifteen present at our first meeting, and the time passed very pleasantly, several members relating their experience the past summer. This was interesting, as it takes in all parts of the State during the honey season. A nice collation was served by our president, and the meeting closed at about 5 o'clock.

Belmont, Mass.

X. A. REED.

ALEXANDER'S SCHEME OF EXTRACTING AND FEEDING BACK TO STIMULATE BROOD-REARING.

In GLEANINGS, p. 1377, Mr. E. W. Alexander says: "We commenced to extract all capped honey from the brood-nest about May 1, and in its place, *when necessary*, we feed a little thin honey or sugar syrup daily for about a month. This is, no doubt, a sound theory; but what puzzles me is the phrase *when necessary*. Surely it is necessary to replace the food when taken out, especially at such time of the season. By such word must we understand that we have to feed a little every day until the colony finding nectar ceases to go to the feeder?" FRAS. BENOIT.

Notre-Dame-des-Neiges, Q., Can.

[Mr. Alexander feeds practically all of his colonies; that is to say, he takes away their stores and then feeds them back to them. This may seem like a queer procedure; but he is working on the theory that stores that the bees manipulate cause them to rear brood when they would not rear it if it were sealed in the combs. If you leave out the words "when necessary" you will be able to understand better what is meant.

We may state that Mr. Alexander is running counter to the theory and practice of the great majority of bee-keepers in this country, who perhaps would consider such excessive stimulation expensive, and that more brood would be reared than is necessary or wise. Too much brood-rearing at the wrong time of the year has a tendency to drain the resources of the colony, and, what is worse, some of the brood will be neglected. Again, when bees take feed out of a feeder and store it in the combs there is a considerable loss. If ten pounds of feed be given in a feeder the sealed comb probably will not show more than 50 per cent of that feed, for the reason that much of it would be lost by the bees actually consuming it.

But Mr. Alexander undoubtedly makes this plan of stimulating brood-rearing a success, as he does all of his various practices; but what he, a practical bee-keeper of many years' experience, is able to do, others probably would not. We would advise the beginner to proceed very slowly with this plan of taking away the stores and feeding them back again.—ED.]

MATING OF QUEENS; HOW NATURE STRIVES TO IMPROVE STOCK.

In order to strengthen the conclusion come to by Professor Cook in the May 1st issue, page 621, I wish to say that, many years ago in England, I found, in an apiary of black bees, two queens that had been mated with an Italian drone. As this was a section well known to me, and in which I knew every hive of bees for a circuit of ten miles I was convinced that the nearest Italian drones were not nearer than four miles. Since locating here we had, six years ago, an apiary of black bees two miles in a direct line south from our home yard, which yard had the nearest Italian bees; yet several young queens in the yard of black bees were hybrids, and several virgin Italians introduced into that yard were purely mated. The special point I wish you to note is that, both in the English queens and those here, the ones mated from a distance were the best honey-gatherers in the yard, and I have often thought that perhaps the credit given by some to hybrids as honey-gatherers was from the vigorous strain injected by long-distance mating.

Wetumpka, Ala.

H. FITZ HART.

[All through nature we see the principle of "the survival of the fittest" as first enunciated by Darwin. This is exemplified very strikingly in bee culture. For example, the swiftest-winged and strongest drones are the only successful suitors, for a young queen on the wing is very swift of flight. It may be, as stated by our correspondent, that she endeavors to give her consort a long chase. If that be the case he must be *her equal and superior* to any of the strongest rivals. The effect of this competition, and the rule of "the survival of the fittest," would be to keep the race from deterioration, and perhaps improve it.

If any one else has any evidence bearing

on this question we should be glad to hear from him; for if we attempt artificial fertilization in a large mating-cage we may to a certain extent defeat the very object designed by nature—namely, the development of strong-winged, hardy bees.—ED.]

TWO QUEENS IN A HIVE.

With reference to two queens in one hive, page 259, a year ago last spring I reported that I had two queens winter in one hive, and when I was clipping I found these two, apparently mother and daughter, depositing eggs on the same comb. They continued to do business in this manner, the old clipped queen growing weaker all the while, until in the middle of the summer, when she succumbed to old age.

Last spring at clipping time I found two young queens in one hive depositing eggs on the same comb as contentedly as though each reigned supreme. I clipped them both and removed one, and used her to supersede a black one. They were both very prolific, and built up strong colonies. These were reared the previous season, and were wintered together.

ELIAS FOX.

Hillsboro, Wis.

ARE SNAKES HARMFUL IN AN APIARY?

In the Aug. 15th issue, p. 1079, Mr. Alexander thinks it best to keep snakes, skunks, etc., out of the apiary. I keep a large snake under the hive to keep away toads. What harm can a snake do to bees? I thought it was just the thing to keep away mice. I notice it stays there most of the time, and is contented, and so was I. I thought I would get another one and put there.

PHARO MILLER.

Salina, Kan., Aug. 30, 1907.

[Ordinarily it is thought that snakes kill the bees; but if you have never noticed any such tendency this may be a mistaken notion on the part of bee-keepers in general. All bees seem to have a natural dislike for snakes; but it is uncertain just how much harm is done. We should be glad to hear from any who have had experience.—ED.]

A SWARM THAT TRAVELED THIRTY MILES.

Before I kept bees a Mr. Malone, who lives near here, had a swarm of bees come to his place. We are thirty miles from the railroad, and there are no bees nearer than that road; so the bees must have come from near the Platte bottom, about North Platte, Neb.

Gandy, Neb.

F. R. HOGBOOM.

BOX HIVE STRUCK BY LIGHTNING.

I have a hive under an apple-tree. The lightning struck the tree and hit the bottom-board, and knocked off the south side and west end of the hive. The bees were not hurt, and they are doing well now on the old stand, and appear to be happy and contented with a two-sided hive only.

Marshall, Mo.

A. M. O'DONNELL.

CAUCASIANS NOT EXCESSIVE SWARMERS.

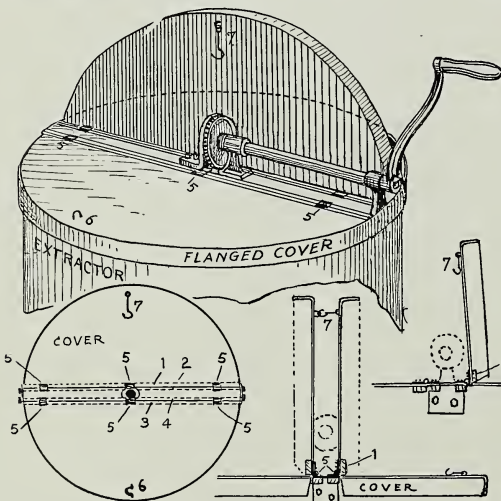
I bought an untested Caucasian queen last year, but I think she was mated with an Italian. They are fine workers. They did not swarm, although the Italians were crazy on swarming. They are the bees for our cold windy Aprils. J. S. PATTON.

Havana, Ala., Sept. 26.

[There have been very conflicting reports regarding the Caucasian bees. Apparently some of the strains imported last year have not been equal to some of those imported two or three years ago. As there must be a good many of these bees in the hands of bee-keepers we should be glad to get brief reports. Tell the bad as well as the good qualities; and if they have nothing in particular to recommend them, let us know the fact as early as possible.—ED.]

COVERS FOR HONEY-EXTRACTORS.

I am sending you a drawing of a cover for a honey-extractor. The illustration shows the idea clearly. It takes three pairs of hinges at 3 cts. a pair, with screws complete, and about half a sheet of galvanized iron, costing about 50 cts.



Such a cover is always ready in an instant; is dust-proof, mouse-proof, and bee-proof. It is not in the way when both sides are turned up and hooked together with a string. It can be closed while running when extracting outdoors in the wind. ELAM MOYER.

Blandford Station, Ont.

[Usually a cloth hood with a rubber cord inserted in the edge is just as good and much cheaper. This is what most bee-keepers use.—ED.]

HERMAPHRODITE BEES.

I am anxious to know something about the bees of a queen I have. They do not look very much like goldens, for that is what

I wanted. One of them had a fair golden color, but the other was the color of a queen of the three-banded strain of Italians.

I have read various articles in GLEANINGS about goldens not being very hardy, but we have had them for the last four years and have found them as hardy as any we have ever had in our yard.

I have noticed some queer freaks among the goldens. Among these are bees with worker heads and thorax and abdomen of a drone, and *vice versa*. They are always from young queens. I should like to know what you call these freaks.

Boonville, Mo.

CHAS. H. MAYER.

[In rare cases a queen will rear hermaphrodite bees—that is, bees with drone heads and drones with worker heads. They are very interesting curiosities to show bee-keeping friends. Their presence, however, in the hive does not appear to interfere with the general work of the colony.—ED.]

GUAJILLA—DERIVATION OF THE WORD.

Mr. Root:—In reply to your request in your Nov. 1st issue I would say that the word *guajilla* or *huajilla* is evidently meant for a Mexican word; but having made a great many inquiries here among the natives I can't find any one who has ever heard it. I have come to the conclusion that it is one of those half-breed words so common along the border—neither English nor Spanish.

The bush you mention is very common here and all through the southern parts, but is called "uñas de gato," meaning cat-claws. It is very similar to the mesquite, only it has these hooks all over the limbs and even small twigs.

L. H. MORRISON.

Nacazari, Mex., Nov. 10.

[In reference to the spelling of the word "guajilla," the matter was laid before the publishers of *El Comercio* (Spanish) who say:]

Mr. Root:—We would say that we would not hesitate to choose *guajilla* as the proper word to use—that is, the word so spelled is just as we would spell it if we had occasion to do so.

J. SHEPHERD CLARK CO.

New York, Sept. 24.

Mr. Root:—Referring to an article on page 1370, entitled "That Bee Paradise in Texas," and to your footnote, I will say the word is spelled "*guajilla*," commonly pronounced "wah-he-ah," the *ll* being an entirely separate and distinct letter. The *h* is always silent in Spanish, so that the written *hua* would be pronounced *wah*, and the entire word *wah-heel-yah*.

MRS. J. A. PRUITT.

Vancourt, Texas, Nov. 6.

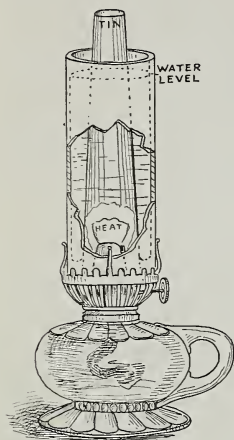
[From this it appears that "guajilla" is the proper spelling of a word variously pro-

nounced in Mexico and the southwestern parts of the United States.—ED.]

AN UNCAPPING-KNIFE HEATER.

Regarding plans for heating a honey-knife in hot water, I find a double lamp-chimney made of tin answers well and requires very little oil. The inside tube is 10 or 12 in. long, $2\frac{1}{4}$ in diameter at bottom over the burner, and $1\frac{1}{2}$ at the top. The outside tube is 3 inches in diameter. A thin wooden or cloth ring is required around the top of the 3-inch tube on the inside to prevent dulling the knife on the tin, or the outside tube may be made of wood $\frac{1}{2}$ inch thick, and is safer to handle. A small blaze will keep the water boiling, which should be occasionally renewed. A low medium-burner glass hand lamp is convenient to carry to outyards.

Little Britain, Ont. R. F. WHITESIDE.



DANDELION HONEY.

It gave me much pleasure to see the articles in favor of the dandelion in your issue of June 15th. The dandelion is a very important honey-plant in this locality. This year ten hives gave me over 200 lbs. of dandelion honey, about one half being comb. For the last three years the dandelions have given us surplus honey. The best hives ran from 20 to 30 lbs. each. The honey is yellow, thick, and has a fine flavor. The only objection is that the wax is always heavy. This year I got an extractor and ran some hives for extracted honey, as we prefer the dandelion honey extracted on account of the heavy comb. Bees are doing finely in this locality this year.

Milltown, Wash.

R. T. HAWLEY.

CLEANING SECTIONS; A REPORT FROM AN 1800-COLONY PRODUCER.

Mr. Root:—As I am not a writer, as are Mr. Gill, Dr. Miller, and others, I will introduce myself. I am a young man 54 years of age; have taken GLEANINGS since it first started as a quarterly, without missing a number. I have about 1800 stands of bees in three States (California, Utah, and Colorado), all run for comb honey. The early close of the honey season in California left me free to ramble. I have been visiting Mr. M. A. Gill, of Longmont, who is running 1600 stands for comb honey.

Some time ago I read of a certain doctor

in California who was talking seriously of changing from the section-holder super to the T super on account of Miss Wilson's record of cleaning honey from the T super. While I was at Mr. Gill's their daughter, Mrs. Marian Fuller, of Beloit, Wis., cleaned and cased 125 cases from 7 to 5 o'clock with half an hour for noon. She had the double-tier case, 24 sections, $1\frac{1}{2} \times 4\frac{1}{4}$. She had to wipe the glass, place 8 strips of wood in position, and put paper in, and she had to carry a good deal of it into the next room; also had to wait for cases part of the time. I think she could clean and case 150 in 10 hours with the single-tier case, and no waits to make and no sticks to space.

Longmont, Col.

F. J. FARR.

HONEY FROM ALFALFA; SOUR HONEY IN A BEE-TREE.

I have noticed the subject of alfalfa producing honey in different localities. I watched this somewhat last summer; and when it was extremely dry there were no bees on the alfalfa; and as soon as we got a shower the bees went to work (or very soon after) on the same field. This was on bottom land, when there were dews at night.

What is the cause of soured honey in the hive? I cut a tree last summer with about 100 lbs of honey, all soured: Would this be good to feed back? I mixed it about $\frac{1}{2}$ syrup, $\frac{1}{4}$ honey, $\frac{1}{4}$ water. I could see no bad effects.

Portis, Kas

W. J. GARRETT.

BLEACHING COMB HONEY; WILL THE USE OF SULPHUR BE A VIOLATION OF THE PURE-FOOD LAW?

In *Orange Judd Farmer* of Aug. 31 is an article on sulphuring fruit. What effect will that law have on sulphuring comb honey for the purpose of bleaching and killing the wax-moth? It seems to me that the effect of the law would be the same on both. Let's have your opinion.

J. A. RUFF.

Fort McKavett, Texas.

[We are not prepared to give you any information on whether the sulphuring of honey-combs to bleach them would be a violation of the pure-food laws or not. We hardly think it would, as the amount of sulphur that would be used to bleach a comb surface would necessarily be very much less than that which is used to bleach dried fruits. A delicate white comb will not stand very much sulphur without getting the surface covered with a yellow deposit. We have seen the process of bleaching fruit in California, and it is our opinion that the amount of sulphur used is excessive as compared with what would be used to bleach comb honey.—ED.]

SUCCESS WITH THE DANZENBAKER HIVE.

I had 23 colonies this spring, and now have 27, having had but four swarms. Swarming was held in check mainly by the tiering-up plan. One-third of the colonies

was first-class; one-third second-class, and the rest nothing more than nuclei. They gave me over one ton of honey, part being comb and part extracted. One colony gave me 204 lbs. of comb honey, and another colony 202 of extracted. I ran my weakest colonies for extracted. The comb-honey hive gave 147 lbs. of white clover, and 57 of buckwheat. The one for extracted gave 120 lbs. of white-clover and 82 of buckwheat honey. I use the Danzenbaker hive and super, and for comb honey or extracted there is not a better hive on the market. I exhibited honey at our State fair in Trenton in 1905, and took first prize on comb honey, but since then I have not had the time to exhibit it.

All colonies are heavy with honey, having had a flow of honey from fall flowers since I removed the supers. LEVI K. COLE.

Stanton, N. J., Sept. 28.

MORE THAN ONE QUEEN TOLERATED IF THE BEES ARE GENTLE.

I would suggest that those who are not able to keep two or more laying queens in a hive without perforated zinc, as Mr. Alexander does, should get gentle stock; then they would be able to succeed. They will also have better success in putting a weak colony over a strong one in the spring, if the bees are gentle.

Hudson, S. D. HENNING ANDERSON.

PLURALITY OF QUEENS IN ONE HIVE; WHAT ARE THE ADVANTAGES?

We have been reading with the greatest interest all that has been said on the plural-queen question, or a large part of it, and will venture a say on the subject. I am one of those apiculturists who keep bees for what there is in the business, as well as the pleasure of being close to nature; therefore the practical side of the question will naturally appeal to me first, and this leads my mind to a variety of questions, such as, Is this a natural condition of the colony of bees? Is the apiarist paid for his trouble? Will five queens give their keeper more money value in one hive than they will in five separate hives, and pay the trouble of raising and introduction additional?

We will notice, in the first place, that more than one queen in a hive is an unnatural state except a few days at the time of superseding. I am a successful apiarist of over 20 years' standing and practice, and have never run across two queens being wintered in the same hive, therefore I am skeptical on the possibility of such a trick. Almost any sort of trick can be worked on bees when they are tumbling head over heels after honey during a big honey-flow, while, on the other hand, with adverse conditions we are often put to our wits' ends in trying to persuade them to accede to even their natural domestic traits. Any first-class queen will overflow a two-story ten-frame hive with bees in due time if the combs are ready for

eggs and she has plenty of nurses and food for the larvæ; therefore, where is the use in fussing with a cupful of queens in one hive? We are not especially pessimistic on this subject, but believe that some good results can be had in the saving of hives, or, rather, making each hive a sure producer of honey by the introduction of a second queen. The question then naturally arises, "Will the apiarist get sufficient pay in dollars and cents to justify such a procedure?" It costs a neat little sum to produce 100 queens to double the queens in 100 colonies of bees with value of work added. If these queens are given separate colonies of their own, the benefit in dollars and cents to the apiarist will be of great importance.

T. P. ROBINSON.

Bartlett, Tex., Nov. 12.

[We do not believe it practicable to have more than two queens to a colony, and even then they must be separated by perforated zinc. We have had reports already from some who claim that they are able to increase the honey crop by the dual-queen system, for the reason that it is easier to raise two mediocre queens than it is one high-class queen that you speak of. Then, moreover, there is the advantage that if one of the queens is lost the colony is not hopelessly stranded, provided the owner should not discover the loss.—ED.]

HOW FAR A SWARM TRAVELS.

On page 1070 you ask for data on how far a swarm of bees will go. About 35 years ago a man by the name of Girard found a swarm of Italian bees hanging on a bush, and sold them to Joseph C. Stewart, a bee-keeper of this place. At that time there were no Italians in Brown Co.; but the year before, a man by the name of Hart had imported some Italians. He lived at Appleton, 25 miles away. It was decided by the bee-men here that the swarm must have come from Mr. Hart's. In later years I found a beehive 8 miles from here, all circumstances pointing directly to the fact that they had left here. They were within a few rods of a large buckwheat-field nearly ripe when I found the tree. The first young bees were just hatching when I cut the tree, and the swarm left here 25 days before I cut the tree, and they flew in a direct line to where I found them. They were hybrids.

West Depere, Wis. PAUL SCHEURING.

HOW TO USE METAL COVERS WITHOUT DANGER OF MELTING THE COMBS.

In the March 15th issue, page 402, I notice the caution against the use of metal covers on account of the danger of melting the combs in the hot sun. I am sure this is a very good precaution. My covers are nearly all covered with galvanized iron, which I believe is the cheapest cover in use. In very hot weather I lift one end of the cover and place under it a strip about an inch square. This

allows a circulation of air under it, and removes all danger. F. H. CYRENIUS.
Oswego, N. Y.

CAUCASIANS NOT ALWAYS GENTLE.

I have just read in the March 1st GLEANINGS, page 337, Mr. J. G. Baumgaertner's experience with Caucasian bees. I have been surprised that so many recommended them last year for gentleness. It may be, as Mr. Baumgaertner says, that the cross with Italians makes them irritable. I found them very treacherous. One day, late in summer, I was taking off honey, and, after giving them a few puffs of smoke, I raised the lid, and I think two-thirds of the swarm struck me at once, settling on my veil until it was weighted down to my shoulders. I had enough stings to kill a man who was not used to it. That some beginner might not have such an experience as mine, I will say that I resorted to the old way of robbing bees by setting them over a pan of sulphur. It is a pity that such pretty bees should be such fighters. The Italians are good enough for me.

Fresno, Cal. R. E. ZIMMERMAN.

FEEDING FOR WINTER STORES; SOME DATA TO SHOW THE SHRINKAGE WHEN SYRUP IS FED.

In the Dec. 1st issue the editor asks for reports of experiments made in feeding for winter stores. Here are two extracts from my notebooks that may interest you. The syrup fed was made of equal parts of sugar and water.

Sept. 6, 1906, I put a super with six empty frames and queen-excluder on hive No. 43; weight, with feeder, 81 lbs.

Sept. 6, 7 P.M., fed 6 lbs. syrup.....	weight 87 lbs.
Sept. 7, 7 A.M.....	weight 86 lbs.
Sept. 7, 7 P.M.....	weight 84½ "
Sept. 7, 7 P.M., fed 6 lbs. syrup.....	weight 90½ "
Sept. 8, 7 A.M.....	weight 90 lbs.
Sept. 8, 7 P.M.....	weight 88 lbs.
Sept. 8, 7 P.M., fed 6 lbs. syrup.....	weight 94 lbs.
Sept. 10, 7:30 A.M.....	weight 90 lbs.
Sept. 10, 7 P.M.....	weight 89 lbs.
Sept. 10, 7 P.M., fed 6 lbs. syrup.....	weight 95 lbs.
Sept. 13, 7:30 A.M.....	weight 92 lbs.
Sept. 13, 7 P.M.....	weight 92 lbs.
Sept. 13, 7 P.M., fed 6 lbs. syrup.....	weight 98 lbs.
Sept. 14, 7:30 A.M.....	weight 97 lbs.
Sept. 15, 6 P.M.....	weight 95 lbs.
Sept. 15, 6 P.M., fed 6 lbs. syrup.....	weight 101 lbs.
Sept. 17, 7 A.M.....	weight 97 lbs.
Sept. 17, 7 P.M., fed 6 lbs. syrup.....	weight 102½ lbs.
Sept. 19, 7 A.M.....	weight 100 lbs.

This is a net gain of 19 lbs. for 42 lbs. of syrup fed.

Oct. 4, 1907, I fed the same colony 21 lbs. of syrup; weight, after feeding, 83 lbs.; on the evening of Oct. 5 it weighed 79 lbs.; Oct. 6, 76 lbs.; Oct. 7, 72 lbs., thus showing a loss of 11 lbs. in three days.

U. H. BOWEN.

Niagara Falls, Ont., Dec. 2, 1907.

[This is a very interesting series of figures. In this case, at least, there was a loss of only 2 lbs. of sugar out of 21 lbs. fed. At the time of year indicated there would be little or no brood-rearing. At other times, when they were rearing brood, the loss

would be considerably greater; but it would be a case of where sugar was converted into bees. From that standpoint the trade would be a good one.—Ed.]

A GOOD YIELD OF HONEY FROM A COLONY IN AN ATTIC.

I have had what seems to be, in our county at least, a phenomenal yield of honey from one colony. By way of introduction I might say that I am General Secretary of the Sunbury R. R. Y. M. C. A., and, of course, live right here in the town. The only hive of bees I have is kept in the attic of my home, the bees going out and in at the east window. I have been telling some of the bee-men of our county, as I see them on market here, that from my one colony I have taken 134 1-lb. boxes, and they look as though they were not quite ready to believe me. But it is, nevertheless, true. My wife and I have kept accurate account of the boxes as we took them off at different times. The only thing I did with the bees was to give them plenty of room. In this way I kept them from swarming. Most of the time I had 96 boxes or four full supers on top of the hive. My bees are quite dark in color, and, in my judgment, pretty cross, although my experience is limited to three or four years.

Sunbury, Pa.

W. D. HEVNER.

THE LONG-IDEA HIVE.

Being an amateur bee-keeper I like to read the experiences of others. I should like to see more writings of schemes of those who keep only a few hives for a hobby. I have one plan that has worked so well with me that I should like to see others try it. It is this: A 16-frame hive, the frames running just opposite the regular way. This is the way I manage it: I keep two frames always with starters next to the entrance. This, with the wide entrance, does away to a certain extent with the desire to swarm. Back of these two frames are the brood-combs and then a division-board. As the bees need more room to enlarge their homes I just move the division-board back to make room for the extra frames. In this way the queen has plenty of room for her work, the bees room to store their surplus honey, and the large entrance gives plenty of room for air and the multitude of bees going and coming. The honey is in nice large sheets. I then cut squares as large as will go into a 1-lb. jar nicely; strain the odds and ends, and fill the jars. In this way my honey sells very readily.

Rockland, Mass.

FRED AMES.

[The hive that you describe is the same thing as was known as the "Long Idea" hive of thirty years ago. The bee-journals were full of the discussion of it at that time; but in later years it has been deemed more practicable to tier up a brood-nest of moderate capacity by piling one on top of the other.—Ed.]

INDIANY.



Once I had a friend, a Hoosier,
Who kept bees the modern way,
Usin' all the newest fixin's,
And he surely made it pay.

But he caught the western fever—
Went out there to strike it rich.
Where he landed plump alongside
Of an irrigatin' ditch.

He had lots of skill and knowledge,
And alfalfa yielded well:
For he got his tons of honey;
But when that he came to sell,
There was no one there to buy it,
So he had to ship away;
And when dividends were counted
He found it didn't pay.

Price was low, the rates were high,
Check was mighty small;
And the extra cost of livin'
Gave his hopes an awful fall.

But I'll let him tell his story—
It will not detain you long:
Oft it has been told you—
This same old mournful song.

I was born in Indiany,
An' I'm pinin' to get back
From prairie winds that howl and moan
'Round my little shack—

From this dreary endless wildness,
Stretchin' fur as yer can see,
An' my heart is nigh to breakin'
Fur the sight o' an old oak-tree.

I was raised in Indiany,
An, I'm wishin' I was back
Where the shiftn' shinin' Wabash
Cuts its twistin' trailin' track—

Plowin' through the rustlin' cornfields,
Loafin' under hangin' boughs,
Where there's pools to hide the fishes,
An' there's shade to cool the cows.

We'll leave him out there for a while, but he'll get back, like the proverbial cat. They never say die or give up. Those who have never been "homesick" hardly know what life is. Those who have been, never can describe the disease. There's only one cure for it ever been found. It's an old remedy, but has never failed. Like the prodigal son, go back home. Many poor creatures fix

Indianny was my old home,
An' I'm heartsick to get back;
Where th' creeks an' woods have a song
That these lonesome prairies lack;

Fur there's nothin' here but silence
'Cept the never endin' cry
O' winds that mourn until yer think
That yer just about to die.

An' ye hain't no use fur livin',
An' the dearest thing yer crave
Is to die an' have it over—
If they'll only make yer grave

Back there in Indiany,
Where the Wabash twirls and turns—
Where the sun has trees to shine on,
An' the autumn color burns—

Where the sycamore's gnarled branches
Show the way the river goes,
An' across the yaller cornfields
Yer can hear the cry o' crows—

While the leaves are droppin' softly—
Nature's tears fur days that's dead,
An' amongst the hick'ry's tremblin' boughs
Where th' gray squir'l peeks its head—

Where oak an' maple colors
Make the woods aglow with tint
O' the land yer lookin' fur at last,
An' ye seem to catch a glint

O' the glory streamin' down'ards
Through a break in heaven's wall,
An' in the whisperin' silence
Yer can hear the angels call.

Indianny's purt nigh heaven,
An' I'm wishin' I was home;
If there's them that's thinkin' diff'rent,
They've a license fur to roam.

Indiana and high heaven
Are just two things which I lack—
I'm a good way off from both now,
An' a prayin' to get back.

themselves so they are unable to get back. Many a poor woman has spent weary days of a homesick life in the western country where all the shade was the north side of a barbed-wire fence, longing for the dear old home. It was a Hoosier, I believe, who said he was "glad to see a dog from Indiany," and I'll bet he told the truth that time, anyhow. So, sons and daughters of Indiany, if

you are homesick, don't despair. Go back, it's no disgrace, but shows a heart and affections. The real Hoosier is born, not made. How they do love to brag on Indiana! Last spring, after the earthquake in San Francisco, hundreds of the people came east. They were on all the trains. One day a man and wife sat in front of me for a 100-mile ride. They attracted my attention by their actions. They eagerly scanned the landscape like children. I spoke to them and learned they were "quake" victims who escaped with their lives and were going back to the old homestead left 30 years ago. He tried to tell me how good it was to see an oak-tree once more. Tears filled his eyes, but he was not ashamed, nor I of him.

Three men met one day down along the bank of the Grand Trunk Railway, and were talking about the land of their births. and were telling where they would rather have been born if they had not been born where they were born. The Englishman said he would rather have been born in France if he had not been born in England. The German said he would have preferred Italy. The Irishman said, "Be gorra, ave oi hadn't bane bawrn in Indiany oi'd bae ashamed ave mesilf."

So, kindly allow a Buckeye to present these few remarks as a token of esteem for my fellow bee-keepers in "Indiandy."

FRANK MCGLADE.



A NEW QUEEN-EXCLUDER.

Something that will not Impede the Passage of the Bees, and that has no Burr Edges.

In punching holes out of metal there is almost sure to be a very slight burr edge. While this can be reduced, by having sharp dies and punches, to almost a minimum, still there will necessarily be a slight edge. True, it can be burnished off, yet in case of perforated zinc the very process of removing it would have a tendency to turn it in, thus reducing the size of the perforation, and, instead of eliminating, it would actually aggravate the very difficulty we seek to overcome.

Within the last year or so, certain bee-keepers have complained that they thought bees did not go through perforated metal without some hesitation; and some went so far as to claim there would be less honey produced above it. But as to this last point, we believe that reports from bee-keepers generally go to show that, from comparative tests that have been made, the use of the metal does not reduce the amount of honey stored. Then the question arises, "Does the

slight burr edge shorten the actual working life of the bees by wearing their wings?" We must say we do not know; but some six months or more ago Mr. F. H. Marbach, a practical machinist, and a die-sinker as well,

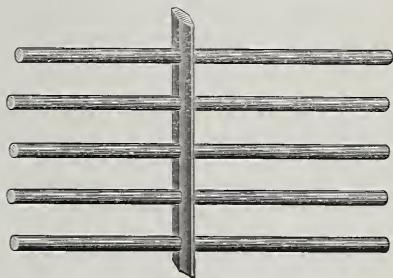


FIG. 1.—ACTUAL SIZE.

conceived the idea of spacing straight wires the correct distance apart. He argued in his own mind that these round bars or wires would have perfectly smooth edges, and provide an easier means of passage than the narrow slots punched out of metal having more or less of a burr edge.

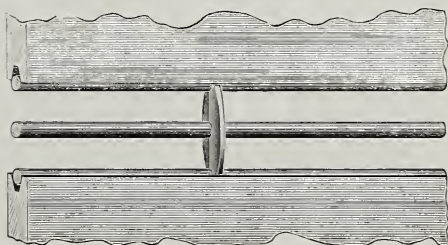


FIG. 2.—ACTUAL SIZE.

First he took some strips of metal and bored holes in them the right distance apart. In these he inserted wires of the same caliber as the holes. He then had what might be called a metal fence with a distance between the bars of $\frac{1.63}{1000}$. When he first showed this

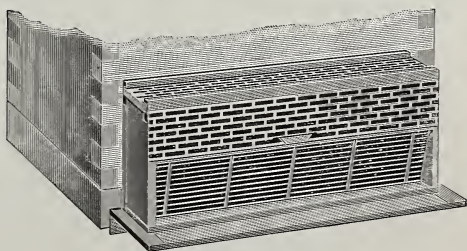


FIG. 3.—THE MARBACH IMPROVED ALLEY TRAP.

idea to us we felt somewhat skeptical, because we felt that the distance between the holes might vary. But he quickly corrected us by saying they could be punched so as to be exactly right. Then we interposed the objection that it would be difficult to feed these wires through these holes, and that the

cost of the device would put it beyond the reach of bee-keepers.

He went back to the shop, and a few days afterward he came back showing that it was not necessary to punch or bore the holes in the posts. He laid the series of straightened wires in a grooved form, then poured melted type metal into transverse grooves, making a product like that shown in Fig. 1, which is actual size. This was so neat and pretty,

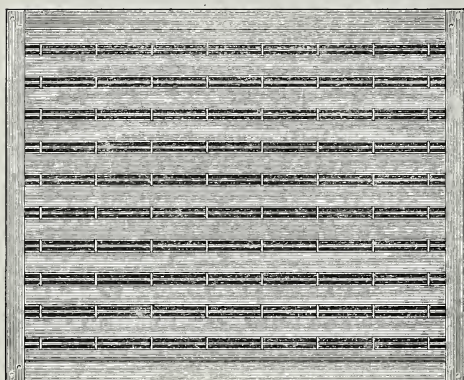


FIG. 4.—MARBACH QUEEN-EXCLUDING HONEY-BOARD.

and so exact, that all our doubts and misgivings were removed—especially so when he told us that the new excluder could be made for but little more than the perforated metal. He further demonstrated to our satisfaction that a wire excluder is much more exact in the width of slot than the perforated metal, and that with a heavy power press cutting 120 holes at a stroke, the dies were subject to wear, and consequently required frequent sharpening. Then, again, the punches would wear enough so that there would be a variation in the size of the holes of perhaps the one-thousandth of an inch. While this is not fatal to the use of perforated zinc, it has a tendency to reduce the size of the holes, and, to a certain extent, impede the passage of the bees.

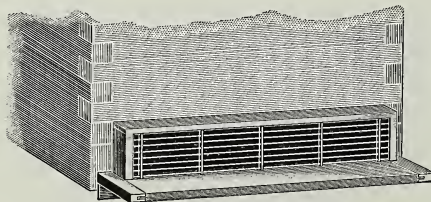


FIG. 5.—MARBACH'S DRONE-EXCLUDER.

In the new excluder the position of the wires or bars will always be exactly the same. These wires are placed in longitudinal grooves in a sort of metal book. At certain distances, and transversely, are other and deeper grooves. A set of wires is placed on one side of the book, when the other leaf is folded over. Then hot type metal is poured in-

to the transverse grooves, when the book is opened up. This leaves a very neat post at regular intervals, as shown in Fig. 1. If the grooves holding the longitudinal wires are correctly spaced (and they must necessarily be made so), the hot metal poured around the wires, when cool, will hold them at the precise distance that they should lie in the form.

The chief advantage of this new excluder will be found in the use of the Alley trap and entrance-guards; and after a careful test in our yards it was plain to be seen that the workers could pass through this excluder much easier than through the old style of perforated metal.

In Figs. 2 and 4 it will be seen that the same principle is applied to the slatted honey-board; and while such boards will cost more than the plain perforated metal, yet, as they will last a lifetime, the relative difference in cost will probably make them cheaper to use in the long run. In the improved Alley trap as now constructed, perforated metal is used in the upstairs portion, while the new excluder is used in the lower part, through which the bees are constantly passing and repassing.

The reader should see the new excluder in order to appreciate its merits; and when he gives it to the bees to test he will find they are equally ready to show their appreciation for it.

Fig. 6 shows a new spring-steel nickel-plated hive-tool which is both a scraper and a pry. The end which is turned down at right angles, or the hoe end, fits nicely up



FIG. 6.—A NEW HIVE-TOOL.

into the palm of the hand when the tool is used as a pry or even a scraper. The other end may be used as a pry or scraper also, but is handy for reaching down into the corners of bottom-boards to clean out bee-glue and dirt.

This tool, made of spring steel, will stand any strain that one can place on it in ordinary bee-hive work; and the fact of its being nickel-plated enables one to see it if it should happen to get lost in the grass.

We have tested a good many shapes and patterns, but have found that this seems to suit the large majority of those to whom it has been submitted.

PAPER FOR WINTER CASES.

A CORRESPONDENT sends us a sample of paraffine building-paper. It is black in color, very flexible, water-proof, and evidently would make a good wrapping around the hive. We are not advised as to the cost, but doubtless it can be obtained of the roofers. For a thin water-proof paper it is the best of anything we have yet seen for the purpose. We do not know how durable it may be.



OUR HOMES

by A. I. ROOT

And if any man will sue thee at the law, and take away thy coat, let him have thy cloak also. And whosoever shall compel thee to go a mile, go with him twain.—MATT. 5: 40. 41.

And Jesus said unto him, The foxes have holes, and the birds of the air have nests; but the Son of man hath not where to lay his head.—MATT. 8: 20.

Despised and rejected of men.—ISA. 53: 3.

DEMANDING "OUR RIGHTS."

In order to be sure to have, on my travels, a place to sleep, I usually order a berth ahead. It is true one can usually get an upper berth, and on some accounts I prefer the upper (better ventilation, for instance); but as I grow older it is not so easy to climb into the "loft," and so I wired ahead and received a telegram telling me what berth was assigned to me between Cincinnati and Jacksonville—price \$5.50. When I handed in my telegram at Cincinnati, however, the clerk said he could give me a berth only to Nashville, where I changed sleepers, and I could pay there the other \$3.50 from there on. I accepted, and never considered, until just before starting, that I had nothing to show to hold my berth, already engaged when I got to Nashville. I then hurried back to the ticket-office and explained. The agent humbly begged pardon, saying he did not read my telegram clear through; but he said that if I would give back the \$2.00 ticket he would give me one right through for the \$3.50 balance. "Now," said I to myself, "you are all right, *sure*."

When I changed cars at Nashville, however, I found "Lower 3" occupied by a lady with a baby, and a colored maid to take care of the baby. If I claimed "my own," and "my rights," the rollicking baby and (more so still) maid must "get out;" but there was not an empty seat in the whole four Pullman sleepers. I decided not to complain, thinking the woman or some one else would probably get off soon; but, on the contrary, more got on instead, at every station, until about every "upper" was also engaged.

Why didn't I go to the porter? I did finally, but he only grunted, and said I would have to see the Pullman conductor.

"Where can I find him?"

"I don't know. I haven't seen him at all to-day," and it was already in the afternoon. Another porter once told me the above official drew all the pay and did nothing, while he (the porter) did all the work and got nothing. I hunted up the conductor, and he was a good deal puzzled; but when I explained about paying the \$2.00 first and the \$3.50 afterward, he said the Cincinnati agent took my money and forgot or neglected to reserve my berth.

"Mr. Root, we are in a bad fix; but if you will just sit down in 'any old place' until we get to Atlanta (these women get off at that place) you can have your seat that you engaged ahead and paid for."

As the train was due there at 7:30 P.M. I said "all right," and commenced, or, rather, *continued*, "boarding round," for I had been doing it all day.

Now, please don't stop reading *here*, dear friend, and do not imagine from the foregoing that I am making a "kick" at the railroads and their management. If you will be patient I think you will find I have some glorious news to tell before I finish. Let me digress a little first, however.

On that trip through the Black Hills of South Dakota last fall a man had just settled himself in his berth across the aisle from me when a new comer ordered him out. He said he ordered that berth by wire two days ahead. They quarreled over it a good part of the afternoon. Both declared they would have that seat, and *no other*, even if it cost a farm. While they were both at supper (still arguing) man No. 3 came aboard, piled their traps somewhere else, and took possession. I told him what was going on, and that he would find trouble ahead. When the two got back there was such a row that not only two conductors but the passengers had to interfere. Finally when I and others offered to give up our "lowers" and go up in the loft, for the sake of peace, all three got to laughing, fixed it up, and finally they shook hands all round. The event was a lesson to me, for it brings out by wonderful contrast the spirit and teachings of the gospel of Christ Jesus.

My trials were not over, but I was getting glimpses of the glory beyond. A good kind man to whom I explained the matter said he was going into the smoking-car and that I could have his seat; and I think that he, out of real gentility of heart, stayed somewhere nearly all day. When I left this seat for dinner, however, the big lusty colored porter plumped himself into it, went to sleep, leaning and sitting on my overcoat, and slept there nearly all the afternoon. Should I wake him and tell him it was my seat? But it wouldn't be *true*, and he knew it. Should I explain that the owner told me I could have it, etc.? I could not, and claim to be a follower of him who, while in this world, had not "where to lay his head." Satan kept busy, of course. He said, "That ungainly fellow will surely make your overcoat smell badly. You *know* Mrs. Root would protest if she knew it. What a hideous sight he is, any way, with his great thick lips and wide-open mouth, while he breathes like a crocodile!"* I felt guilty, and turned to look some other way, when my eye fell on the colored

* In regard to the heavy breathing, if we white people could sleep and breathe like that it might save us from many ills, and it is very likely true that even A. I. Root is not *particularly* good-looking when he is sleeping soundly after hard work. A porter's duties keep him up nights; and to "hold out" he must steal rest day times.

maid. Satan commenced again: "That black girl with the baby is mussing up the seat you 'bought and paid for,' and *it* will *smell* too. Even if they are porter and maid, they should not be allowed to occupy the seats designed for white people—" Here I abruptly shut off Satan again; but he had got agoing, and then he started off on another tack. "They always pick at *you* and snub you. In the buffet car they filled orders for other people, given long after yours was handed in; and, after all this waiting, your hash was almost cold, and no butter with your bread."

I had been standing all this time, but finally ventured to sit down by a man who had been uncivil in the morning (or at least I *imagined* he was). When I quietly asked permission to occupy a part of his seat he said something I could not hear, and moved his coat-tails so little that I could scarcely avoid sitting on them.

Yes, dear reader, it *is* true that your old friend A. I. Root, whom many of you have learned to love, felt for a few hours that day that not only did no one want to *talk* to him, but no one seemed to want to give him a seat when he was weary of standing.

Perhaps I should mention that, in the morning, when some one said he lived in Georgia I suggested that his State was the center of discussion just then. He replied:

"Do you mean in regard to prohibition? It is the biggest blunder that any State ever made, and there isn't a business man in Atlanta who voted for it."

I said no more, for I decided that the average Pullman car is hardly the place to find friends of temperance, or, as a rule, friends of Christianity, and this may account for my uncivil seatmate. Had I demanded *my rights* I could have had a seat at any time, but I am glad I did not. When I remembered that the dear Savior at one time did not have "where to lay his head" I began to feel happy. The porter, after his refreshing sleep, began to dust off the car; and when he saw I was preparing to take my "after-dinner nap" he brought me a nice clean pillow; and when I thanked him, and he smiled, I decided he was a real good-looking young colored man. I could honestly admire his strength and skill as he made up the berths with such dexterity. Then I looked at the colored maid, and she *too* had changed. She was a bright *pretty* girl, even if she was black. Had all the people in our car changed suddenly? or was the change in my own heart after I said, "Get thee behind me, Satan"? May God forgive me, and I will ask our colored friends to forgive me for the unkind thoughts I permitted to creep into my heart. There wasn't the least *trace* of a smell on my overcoat, even if the young man did sleep with his face on it for over an hour. Our porters are, as a rule, a bright clean set of men; and I believe the colored people generally, *if they take pains*, may be as sweet-smelling as white people. In a recent editorial the *Sunday School Times* said the man who is

always demanding and insisting on his rights is any thing but a *happy* man.* I believe this is largely the class who commit suicide. The person who goes through the world giving up his rights for the good of his fellow-men finds so much happiness in so doing that he not only will never think of self-destruction but will never be impatient in awaiting God's call.

It may be true, and it probably is true, that there are people who do not appreciate or understand the spirit of self-sacrifice when they see it. Such people take advantage of it, and the patient Christian may be tempted to think he is only "casting pearls before swine;" but let him be patient, and remember who said, "Blessed are the meek, for they shall inherit the earth;" and "Whosoever shall lose his life for my sake and the gospel's, the same shall find it."

RUNNING AWAY FROM FRIENDS.

In Our Homes for Nov. 15 I mentioned the case of a young man who left suddenly without giving anybody any reason for his sudden disappearance. I lament that this thing seems to be getting to be a fashion nowadays. Not long ago a young man left his home without even saying good-by to his mother or anybody else. He took pains to cover up his exit so perfectly that nobody ever discovered *how* he got away, let alone his reason for going. Nobody knows the anguish that that mother suffered until she heard, a year afterward, that he was away off in another part of the world. There was no apparent reason for his doing this. He had said nothing about being dissatisfied. He left his book open where he had been reading, and said he expected to be back in a few minutes. Since then not only boys but *girls, men, and women* have been suddenly missing. Perhaps some excuse might be offered in the case of a young person, for thinking it a fine thing to stir up a whole neighborhood or set community in general hunting all over the country to find a trace of the missing one; but if any one who reads these pages feels any temptation in a similar line I beg him to consider a little before undertaking it. What would you think of a boy who would deliberately pick up a club and hit his mother a cruel blow when there was no excitement or reason whatever for so doing? Yet no blow can be so cruel and torturing as the one I have mentioned. We have no *right* to do things of this kind any more than we have to inflict pain, or to steal money belonging to somebody else. God forbid that this fashion should be on the increase.

* Here is the item from the *Sunday School Times*.

Nothing hurts a man more than a continual effort to get his rights. "That man always manages to get a seat, no matter how crowded the car," one man was heard to say of another who apparently had just demonstrated his ability. The man thus described may have called it good managing; those who know his practice would call it bad. If there is no stronger reason for insisting on our rights than merely the fact that they are our rights, we had better let them go.



"GARDENING IN THE WOODS," ETC., IN THE MONTH OF NOVEMBER, IN SOUTHERN FLORIDA.

Our "woods" comprises just one acre, and it is just across the street from E. B. Rood's place (see his strawberry article, June 15), and one mile from Braidentown. I reached here Nov. 8; and the next morning, with the help of "Charlie" (a colored boy of 24), I broke ground for a garden. The first thing was to grub out the roots of the scrub palmetto; and as they are about as big as a man's leg, and anywhere from 2 to 10 feet long, pretty well clinched in a horizontal position in old Mother Earth, it is quite a job. By night, however, we had a bed 6 feet wide and about 40 feet long, and, I thought, ready for seeds. Mr. Rood, however, declared I would get no "high-pressure" gardening until the ground had been worked over and "sweetened" for about a year. Up in Michigan new ground is *the thing*; but not so in Florida. Where the palmetto has been grubbed out it is "sour," and full of tannic acid, etc. I told Mr. Rood I *must* have something growing on *my* ground, and by his advice (although he snook his head somewhat) I put on about a pailful of high-priced fertilizer, then went out through the woods with a wheelbarrow and gathered a barrelful of "cow-chips." This barrel was then set up on a board just as we leach ashes up north, and we were all ready for water. Now, please don't find fault if I *do* tell about the good things where God happens to drop me, and say little of the bad things.

One thing that greatly rejoices my heart is the ease with which we get beautiful soft water almost all over Florida. My well close by the garden cost less than \$5.00 (pump and all), and it was driven down so we could pump water in about 20 minutes. The water is so soft, Mrs. Rood says there is little or no difference between it and rain water. Charlie talks very little unless he is spoken to. He said the bucket of fertilizer was all right, and the cow-chips were all right for the garden, but when he saw me pouring water in the top of that barrel he rubbed his woolly head and looked troubled. Finally he ventured:

"Mr. Rood, don't you think the water you are pouring on that manure will take all the 'goodness' out of it?"

"You are just right about it, Charlie; it is this same 'goodness' we are after," and when he saw me push a pail under the dark liquid that began to run from the base-board he looked relieved. Well, I bought a great big sprinkling-can and drenched my garden daily: and now (Nov. 21) I have radishes,

lettuce, beets, and onions up, and looking pretty well in spite of the newness and tannic acid. Although we have had no rain for a month or more I have worked my pump until I was tired, and the stream holds out full. The lower end of the strainer is down only about 8 feet. The water has a slight sulphur taste, it is true; but as the men at work on our house say it is tiptop for drinking, I shall have to conclude it agrees with people generally. I have been so long accustomed to rain water that, even when boiled or exposed to the air, it rather upset my digestion; and as we had been having several days of very warm weather I was a little out of sorts and longing for something. I hardly knew what, to take the bad taste out of my mouth, when Mr. Rood's team came along with a few strawberries—the very first of the season.

Well, friends, I never in my life invested a little money in *medicine*, food, or any thing *else*, that gave me so much satisfaction as a box of those Excelsior strawberries. I kept some of them all day; and to say they "hit the spot" every time doesn't half tell it. So far as I know, Mr. Rood has the first strawberries put on the market in Florida. He sells them all in his home market, and starts them at only 35 cts. a quart. I have sampled strawberries in Bermuda, Cuba, California, and all over the North, but I certainly never saw any handsomer and more luscious than his Excelsior. They are of fine shape, good size, beautifully colored up, and, although pretty tart for most people without sugar, they suit me to a dot. The perfume and the flavor are very much like those of the very best wild strawberry. I say *perfume*, for the perfume of a box, even out in the open air, is the best advertisement of the fruit that can well be invented. Now, you need not all come down here to raise strawberries, for only a few of you *could* raise them as he does if you tried, and perhaps only a part of the few would be willing to take the pains he does, and pay for the fertilizers.

I am going to wind up my story by telling you of something—I came near saying "something better than even the soft water and the strawberries." Listen. Mr. Rood's house is very close to a well-traveled road, yet his doors are never locked, and in very warm weather they are often left open all night. His White Leghorn chickens roost in an open shed quite near the highway, on low-down roosts, and have done so for *eight years*, and yet one-third of the population are *colored people*; but he has not lost a chicken nor even a *strawberry*, so far as he knows, by theft. Just contrast this with many localities—in fact, *most* localities in the North, especially rural districts near the great cities. What does it mean? It means there is not a saloon, and *never* has been, in this (Manatee) county. The significance of this fact is just now ringing throughout every State in our nation—from Maine to Oklahoma, and from Florida to—to *Georgia*. May God be praised that the prayers of the Anti-saloon League have finally been *heard* and *answered*.

The California *Voice* says that President Roosevelt said, in a recent address to the people (mostly colored) of Bayou, Miss., "I am glad you have not permitted a saloon in the city limits."

SWEET CLOVER; IS THERE ANY POSSIBILITY THAT IT MAY, UNDER SOME CIRCUMSTANCES, BE JUSTLY CALLED BY THE FARMER A NOXIOUS WEED?

The following, clipped from the *Ohio Farmer*, from C. B. Wing, a great authority on alfalfa in Ohio, is quite important. First, he tells us that sweet clover is valuable for pasture when it happens to come up with alfalfa or any other clover, and it will improve its value for seed; and if the seed should accidentally get into alfalfa seed it will be a benefit to the alfalfa rather than a detriment. As sweet-clover seed is constantly coming up in value, it very soon will be, if it is not now, worth as much as alfalfa seed; and as it excels alfalfa as a gatherer of nitrogen, the alfalfa will do still better with sweet clover mixed in with it.

In buying Western alfalfa seed one is pretty apt to get a small proportion of sweet clover along with it (*Me lotus alba*). It had not occurred to the writer to mention the presence of sweet clover in alfalfa seed; but as he now recalls it he can not remember an alfalfa-field established upon Woodland Farm within recent years where sweet clover did not appear in greater or less amounts the first year. Some of it will even show the second year, but after that it is seen no more. Sweet clover is a biennial, and can not endure mowing off. If not allowed to mature seed it is soon extinct. It is hardly right to classify sweet clover with weeds, since it is a splendid soil-enricher, one of the most energetic nitrogen-gatherers known, and it carries the same nitrifying bacteria that alfalfa does, and is thus a direct benefit to a young alfalfa field, since it pioneers the way and makes the alfalfa that succeeds it thrive all the better. However, one should mow it off at least two or three times in a year, and that will prevent its seeding and becoming too plentiful.

Sweet clover in the South is much used as a sheep and pig pasture. It is greedily eaten there when it comes up first in the spring. It makes a hay too coarse and woody to be relished by most animals, and has also an odor that seems too strong for Northern stock. It is a splendid bee pasture, however.

I mention these peculiarities about sweet clover so that men getting a little of it in alfalfa seed may not be frightened. They should go on as though they had none of it. Their alfalfa meadows, in order to succeed, will need to be cut at least three times a year, and that will varquish every bit of the sweet clover.

Champaign Co., Ohio.

CHARLES B. WING.

SWEET CLOVER IN OHIO.

The following, from the *Rural New-Yorker*, is of value, not only because it shows us how to teach stock to eat sweet clover, but because the author is one of the great agricultural writers and teachers of our State:

The following is suggested by reading Mr. Legg's article, "Sweet Clover and Alfalfa." There are some wrong impressions regarding the plant. Here it grows very rank on the roadsides and in some fields. I used to think, like Mr. Legg, that stock would not eat it, for I often took care to notice when driving along a road on the sides of which it grew as high as a horse's back, whether the droves of stock, cattle principally, fed on it, and never did I see that a plant had been nipped. Later, in a field where a lot of big steers were pasturing, the sweet clover grew in great abundance, and the cattle, by feeding on it, had cut it down to about knee high. It had made a large growth before they began to feed on it; and, below the height mentioned, it was too coarse and hard to be palatable.

Seldom now do we see it in pasture-fields; but on the roadsides adjoining these fields it grows in abundance, and would undoubtedly grow in the fields if the stock let it alone. When driving lambs along the highway I have noticed that they eat it as readily as the grasses that grow with it—blue grass, etc. Men owning horses in my nearest village I have known to cut it from the roadsides and haul it to their stables and feed it to their horses. At first they refused it, but soon learned to relish it. I know of a timothy meadow being cut this year that had growing with it an equal bulk of sweet clover. This was stored in sheds, and will be fed out to cattle this winter. In the same field in which this timothy grew last year, after wheat, there came on five or six acres a very rank growth of sweet clover. This year there grew a very excellent crop of corn on the same land. Alfalfa grows on all the land about here without soil inoculation. But unless the land is well drained, naturally or artificially, it will winter-kill. As regards sweet clover, I would gladly have more of it grow on my farm than the stock and cultivation will allow to grow.

Ross Co., O.

JOHN M. JAMISON.



POISONOUS PLANTS.

About a year ago a sister of mine, Mrs. E. J. Gray, was afflicted with something the doctors first called erysipelas; but after being treated for that malady, without getting any relief, she called another physician who called it eczema. But still she kept getting worse, until it finally prevented her from using her eyes, to such an extent that she had to give up reading. If I am correct she consulted a third physician, and he said *both* doctors were wrong. He said the trouble was something else. Just about that time I noticed one day that she had a beautiful specimen of a house-plant that I had given her some months before. It was what florists call *Primula obconica*. I began to remark about its wonderful luxuriance and the quantity of bloom that was all the while peeping out from under the bright-green foliage. She replied that, as she could not read, she had spent a good deal of her time with that plant, picking off the faded flowers, etc. All at once it occurred to me that I had seen in the florists' books and magazines statements to the effect that this plant is *poisonous* to some people, and by my advice the plant was put out of the room, and she never went near it again. The erysipelas, eczema, or whatever it was, disappeared almost immediately. Her last doctor claimed it was *his* skill and his medicine that performed the cure. Now, I do not know how we can prove conclusively whether he was right or wrong in the matter; but I find in a recent number of the *Florists' Review* a discussion in regard to primula poison and the remedy; but, to be honest about it, I have no more faith in the remedies for poisonous plants than I have for those for bee-stings. Get busy at something else, forget all about your stings, and nature will perform the cure; and when you get poisoned, banish the poisonous plant as my sister did, or keep away from it, and nature will

perform the cure at once. An application of cold water is, of course, always in order. No wonder the doctors were puzzled, and failed to give relief when she was getting poisoned more and more every day of her life in admiring and handling her beautiful plant. This poisonous primula is a near relative of what is commonly called Chinese primrose. It is a little singular that it should be so poisonous to some people and yet have no effect on others. I have handled the plant for years in the greenhouse, but I have never suffered at all, although I have been repeatedly cautioned that I *might* get poisoned by touching the blossoms and foliage. Its poisonous properties seem to be so well recognized that the Department of Agriculture has suggested sugar of lead as an antidote.

MENTAL MALADIES; WILL THEY YIELD TO
OUTDOOR EXERCISE, PURE WATER,
AND NATURE'S REMEDIES?

If Mr. A. I. Root can give us an account of the cure of a case of insanity by natural means, equal to the consumptive and cancer cases cited, the world may feel that there is no such thing as an incurable disease. I firmly believe that with nature (God) all things are possible. JENNIE P. WELLS.

Roseland, N. C., Oct. 14.

My good friend, this has often been talked about, and I have known at least one successful experiment. A man whom I knew quite well in my boyhood gradually settled into a melancholy, and seemed to have, at least to a considerable extent, lost his mind. As I knew him when he was a boy he was remarkably bright, vivacious, and cheerful, and I could not understand how it was that he had lost hope, given up all occupation, and, with his friends, he seemed to consider himself past remedy. It was during the time I was greatly interested in celery culture, growing plants for sale, etc. He consented to try working in the garden; and with a little showing he transplanted the little plants from the seed-bed into a larger bed quite successfully. About this time I was greatly taken up with some chickens of which somebody had made me a present. I think they were called American Wonders. Well, these chickens were *also* greatly interested in the work with the celery-plants. I told the boys if they would just drive them away and give them a big "shooing" so as to scare them sufficiently they would stay away; but that rich mellow soil, with plenty of old well-rotted manure incorporated in it, proved to be too strong a temptation for the biddies. Again and again they came up behind John's back; and the way they made the plants and dirt fly was a caution. I said, "Why, John, I am sure you can remember to look up occasionally and see those chickens before they get into the plant-beds." He looked up at the chickens, and at the wreck and ruin they had wrought in his work, and said he thought he could remember to keep an eye on them. Pretty soon we had the same thing over again, and I began to scold. My conscience troubled me somewhat; however, when I reflected that I had been talking pretty severely to an

old friend and neighbor who was physically unfortunate, and perhaps unable to assume even this little bit of responsibility. Please excuse my dwelling at such length, friends, on details that may seem unimportant. But there is a valuable lesson right here. John looked up at me, and, instead of feeling hurt, as he had a right to, I thought I saw a comical look on his face; and then he gave me one of my "happy surprises" by saying, "Mr. Root, you will have to put some bells on those chickens so a fellow can have some notice when they come around behind his back."

The boys and everybody present burst into a loud laugh, and then I thanked God for the success of my experiment. It was the first time that my friend John had, perhaps, so much as smiled in years, much less perpetrated a joke. I once heard somewhere that when you can get an insane man to laughing the spell is broken. Come to think of it, I think I have seen, a hundred times since then, bad feelings dispelled by a little bit of innocent pleasantry. I am glad to tell you that this friend gradually recovered from his malady, whatever it was; and although he has held aloof to a considerable extent from his fellow-men, yet he is a useful member of society, and nobody would ever suspect there had ever been any thing wrong with his mental powers. It is not only outdoor employment that we want, but the patient must be busily employed in something that will occupy his time and attention, and, if possible, enlist his interest and sympathy. At the great asylum for the insane near Traverse City, Mich., every possible means is employed to get the inmates interested in outdoor work. All sorts of crops are grown, and even fruits and flowers and ornamental plants; and I am told they are meeting with much success year after year.

PEANUTS VS. BEEFSTEAK.

The following is from the Lowell, Mass., *Sun*:

Prof. F. E. Jaffa, who is making bulletins for the United States Department of Agriculture, has made an announcement that, if found correct, should revolutionize the peanut business and pull away down the price of porterhouse steaks. This professor, who hails from the University of California, not Java, says that ten cents' worth of peanuts contains more than twice the protein and more than six times the energy stored in a porterhouse steak. This is a startling announcement, and, if it were entirely true, we doubt not that the average epicure would still stick to his porterhouse steak. Nevertheless, it will cause an increased consumption of peanuts. It would be interesting to know whether the professor would accept a diet of peanuts instead of a good juicy well-flavored steak.

My impression is, this is an exaggeration of the real truth. It may be, however, an encouragement to those who are beginning to adopt nuts as a diet in place of using so much meat.

OUR EXPRESS COMPANIES AND THEIR HOSTILITY TOWARD PARCELS POST, ETC.

The *American Cultivator* in a recent issue trenchantly expresses the situation as follows:

It is hard to understand why, with all the popular opposition to railroads, there is not more sentiment against the exactions of the express companies. The behavior of the railroads is mild compared with the hidden monopoly of the concerns which dominate express transportation. Combined in an informal trust which controls the whole system, they are accountable to nobody for the rates and service rendered, and in many cases do not, apparently, care particularly for the interests or opinions of their patrons who pay enormous prices for their services. By ownership of one another's stock, and arrangement as to roads and territory, it matters little to them whether business is transferred from one express company to another. Their insolence to the Interstate Commerce Commission is a matter of record. It looks as if the Commission, backed by the new law, would finally get the upper hand, but it is certainly a slow process with the first skirmishes in favor of the express companies, who have actually succeeded in raising the already exorbitant rates in several localities, concealing their actions in various ways through change in classification, regulations as to weight, etc.

Temperance.

"THE CHARACTER OF THE ENEMY WE ARE FIGHTING," ONCE MORE.

Our readers have doubtless seen the statement that Mr. Joseph Zeitlin, of Brooklyn, N. Y., who is 102 years old, has used whisky and tobacco all his life, and lately they are declaring he also smokes cigarettes, and that he smoked twenty of them to celebrate the day he was 101 years old. I knew when I saw the statement going through the papers (and papers, too, that ought to be ashamed to publish a thing of this kind) that it was a fake item, yet I had no means to prove it. The *American Issue* has however (see the issue for Nov. 1), chased the thing down and hunted up the truth in the matter. Like the outrageous canards told by the Duffy whisky people, it transpires that Mr. Zeitlin is probably 102 years old; but he is a foreigner, and does not speak our language. The facts could be obtained only from his granddaughter. All the whisky he has ever taken was a small glass before his noonday meal, and that was taken medicinally. It is true he uses tobacco, but not at all to excess; and the whole story about his using twenty cigarettes in a day, or cigarettes at all, was probably manufactured by the vendors of cigarettes. Now think of it, friends—the idea of putting before the youth of our land, and then having it copied world-wide by the editors of newspapers, a statement to the effect that cigarettes, whisky, and tobacco are not so very bad after all; and the statement in some of the papers might induce many an American boy to think that these things actually contribute to health and longevity; and yet our courts tell us, and the Department at Washington tells us, that we have no laws to punish a man for such malicious lying. They base their falsehoods on the fact that Mr. Zeitlin is actually living at 136 Lexington Avenue, Brooklyn, N. Y. The worst thing about these false statements is that many of the editors put on a heading to suit themselves, and this heading (or something additional in the way of a footnote) many times seems

to cast a slur or ridicule on the good men who are battling against intoxicants and cigarettes among our children.

COLLIER'S WEEKLY AND THE PATENT-MEDICINE BUSINESS.

I suppose thousands of good people rejoice to notice the bold and fearless way in which *Collier's Weekly* has held up and exposed patent medicines that depend on whisky, morphine, etc., for their pretended help to the sick and suffering; but, like a good many others, while I rejoice to see these things held up to the full light of day it gave me a big jolt to notice cigarettes advertised in the very same issue where they exposed and held up the sins of other periodicals, especially our religious journals. If my opinion were asked I think I should say that cigarettes are doing more damage, especially to the youth of our land, than any fake medicine extant. Another thing, there is certainly much exaggeration in their severe criticisms of our Christian papers. The *Christian Endeavor World* has replied in a very kind and Christianlike manner. I wish to clip just one paragraph written by the publisher of the journal just mentioned:

I believe, Mr. Editor, if you will go back over your own files for the same period that Mr. Adams covers in examining our issues, you will find in your own columns not only patent medicine but also whisky, beer, and cigarette advertising.

Truly it behooves those who live in "glass houses" to be a little careful how they "throw stones" indiscriminately.

The religious periodicals, however, ought not to be greatly troubled, especially when they are not guilty. My dear old pastor, Rev. A. T. Reed, used to say in his morning prayer, before he had preached his sermon, "O Lord, we thank thee for our enemies, for they tell us of our faults when our friends would not dare to do it." While we forgive the exaggeration, let us carefully examine the charge and see if at least a *part* of it is not true.

A SUGGESTION TO CONTRIBUTORS.

We wish to offer a suggestion. When you desire to describe a process, method, or device, be sure that you make a clear, clean-cut description, describing the process, method, or device, leaving all other explanatory matter to be stated later. A short time ago we read over a description of a process in which the author interjected explanatory matter at each step of the operation. When we had finished reading the whole we had to go over it a second and third time before we could clearly separate the explanations from the actual thing that was being described. First describe the thing itself briefly, then repeat, putting in the explanations. By so doing the reader has a birdseye view at the start, and when he comes to the explanations they serve to elucidate and not confuse.



Our records show that something like 2000 copies of the new edition of the A B C of Bee Culture were sold before it was off the press. We are making delivery as fast as possible, and hope that all of our friends will be supplied before this issue reaches them.

SUNDAY SCHOOL TIMES.

There is no weekly home paper for the moral and religious nourishment of the family that will equal the *Sunday School Times*. It is especially helpful to Sunday-school teachers and others interested in Bible study. We can supply it clubbed with GLEANINGS at \$1.75 for the two, the regular price of each being \$1.00.

ADVANCE IN PRICE OF BUSHEL BOXES.

Because of increased cost of lumber we are obliged to mark up the price on bushel crates and boxes. Until further notice the price of all-slatted bushel boxes, 14 to crate, is \$2.10 per crate; 12 to crate, \$1.90; galvanized board, 12 to crate, \$2.50. A corresponding advance is made in wholesale and jobbing prices.

WHITE-SWEET-CLOVER SEED.

We have secured a pretty good stock of unhulled white-sweet-clover seed. We find in several instances a large local demand for the seed at better prices than we have been selling at, and that, in order to make it an object for those able to gather the seed to do so, we shall have to pay better prices than we have been doing in former years. Our stock of seed secured for the coming season is little more than half what we had a year ago. We are obliged, therefore, to raise our selling prices to 25 cts. per lb., postpaid; 15 cts. where shipped with other goods; \$1.30 for 10 lbs.; \$11.00 per 100 lbs.; hulled seed at 8 cts. per lb. extra.

YELLOW-SWEET-CLOVER SEED.

We have finally secured a choice lot of yellow-sweet-clover seed which is now on the way to us from Oregon. The sample we received is hulled, and we suppose the bulk lot will be the same. We can offer this at 25 cts. per lb.; 10 lbs. \$2.30; 100 lbs., \$21.00. By mail, 8 cts. per lb. extra. The chief advantages of the yellow over the white is in the fact that it blooms at least two weeks earlier. From some reports received it is not so hardy, or so luxuriant in growth as the white.

STEEL HIVE-TOOL NICKEL-PLATED.



After much experimenting we have adopted a hive-tool, about eight inches long as shown above. It is made of tempered spring steel, about 1½ inches wide at each end, sharpened and one end bent over at right angles for a scraper or a rest for the hand when inserting the opposite end to separate parts of hives. It is nickel-plated and polished. Price 40 cts.; by mail, 46 cts.

WAX MOLDS FOR OUNCE CAKES.

There is a very large demand for little cakes of beeswax for various household purposes. You will find that nearly every druggist keeps wax, not only

for compounding but for sale. Since the enactment of the national pure-food law there has been a stimulus to the demand for cakes of pure beeswax where, before, a mixture was often used. We have calls for molds for making these small cakes. We have not heretofore had them to furnish. We found something of compact form, and just the right size to hold one or two ounces of wax. They are pressed tin retained. Price of one-ounce size, 35 cts. per dozen; by mail, 40 cts.; of the two-ounce size, 40 cts. per dozen; by mail, 50 cts. For our trade we put up each ounce cake in a carton, and 32 cakes, or 2 lbs., in a large carton, which sells to the dealer for \$1.00. The price of these cartons depends on the quantity you require and the printing on them. Prices quoted to those interested, on application. For limited local need you can doubtless work up a trade without the cartons.

GERMAN EDITION OF THE A B C OF BEE CULTURE.

We find when we get all our figures together that the production of the A B C in German is a bigger expense than we anticipated, and that \$2.00 each for the paper-bound edition does not cover first cost to us, even if we could sell every copy for cash at the full retail price. Compared with other works of like size and nature of contents the price ought to be \$5.00 per volume; but we know very well that very few would buy at that price. To make the price reasonable, and at the same time bring us somewhere near first cost, we will ask \$2.50 postpaid for the cloth-bound edition and \$2.00 for the paper-bound. When shipped with other goods by freight or express, 20 cents may be deducted. If any of our readers know of German friends who do not read English readily, and would like to read the A B C in their native tongue secure their order for the book at the above prices, and for 50 cts. additional we will send GLEANINGS one year to your address or any other to which you may prefer to have it sent.

PERFORATED ZINC FOR QUEEN-EXCLUDERS REDUCED.

During the past few months the market price of spelter and sheet zinc has declined sharply, so that zinc is now selling as low as it did in June, 1905, although it lacks more than one cent a pound of being as low as it was in June, 1904. Because of the reduced cost of zinc, we revise prices on perforated metal, taking effect from this date.

Sheets, 32x96 inches, will be \$1.50 each.

PRICE LIST OF ZINC HONEY-BOARDS.

QTY.	NAME AND SIZE.	Price of 10.	Weight of 10.
1	10-frame unbound zinc, 14x19½.....	\$1.50	7 lbs.
2	10-fr. large unbound zinc, 16x20.....	1 70	8 "
11	8-frame unbound zinc, 12x19½.....	1 30	6 "
9	8-frame wood-zinc, 13½x20.....	2 10	13 "
10	10-frame wood-zinc, 16x20.....	2 40	14 "
12	10-frame wood-bound zinc, 16x20.....	2 00	11 "
13	8-frame wood-bound zinc, 13½x20.....	1 90	10 "

WIRE QUEEN-EXCLUDERS, PATENTED OCT. 8, 1907.

On another page of this issue we show something new in queen-excluders, which we believe will be a great gain in saving wear and tear on the bees' wings passing through it when contrasted with perforated zinc.

Alley traps and entrance-guards with wire instead of zinc in entrance will be 5 cts. each more than the old style—namely,

Wire Alley trap, 8 or 10 frame, 50c each; \$4.50 for 10. Wire entrance-guard 8 or 10 fr., 18c each; \$1.50 for 10. No. 7 wire and wood honey-board, 16x20, \$3.50 for 10. No. 8 wire and wood honey-board, 13½x20, \$3.00 for 10. Wire entrances, pieces for either Alley trap or entrance-guard, 10 cts. each.

Wire strips for honey-boards, \$2.20 per 100.

NEW HONEY-JAR.

We have found a new honey-jar which is not only neat in appearance, and seals tight, but is lower in price than any of the jars listed in catalog. We shall have it in ½-lb. and 1-lb. size. The mold for the 1-lb. size is not yet ready, and we shall not have the jars in stock for some weeks. We have a few of the ½-lb. size. We can mail a sample for 15 cts. to pay packing and postage.

REMITTANCES FOR ORDERS AND ACCOUNT.

We are under the necessity of asking our friends and patrons when making remittances not to send checks on local banks, but to send, instead, either a bank draft on New York or Chicago, or a postoffice or express money order. The tight money market through which numerous sections are passing is making it difficult for us to get credit at the banks for local checks, and in some cases we may be obliged to return them and ask instead for a remittance in one of the forms mentioned above. Where we make payments we almost invariably do so by New York draft. Where you can not remit by any of the methods mentioned, then send money by registered mail. The most approved methods, however, are by bank draft, postoffice or express money order.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following second-hand foundation-mills in good condition. We shall be pleased to hear from any one interested. To such we can send a small sample of comb foundation representing the kind of work produced by the particular machine you enquire about.

No. 078.—6x2½-inch hex. cell thin super mill, in very good condition. Price \$12.00.

No. 079.—6x2½-inch hex. cell thin-super mill, in very good condition. Price \$12.00.

No. 088.—6x2½-inch hex. cell thin-super mill, in good condition. Price \$12.00.

No. 088.—6x2½-inch hex. cell extra-thin-super mill, in good condition. Price \$12.00.

No. 088.—12x2½-inch round-cell heavy-brood mill, in fair condition. Price \$12.00.

No. 082.—10x2½-inch round-cell medium-brood mill, in very good condition. Price \$15.00.

No. 090.—10x2-inch round-cell medium-brood mill, in fine condition. Price \$15.00.

No. 091.—10x2-inch hex. cell, medium or light brood mill, in good condition. Price \$15.00.

DR. MILLER SPLINTS.

We have often had calls for wood splints for use with foundation in brood-frames to prevent sagging, as used and recommended by Dr. C. C. Miller. We have usually made them by sawing them out, and wasted more than three-fourths of the wood in sawdust. We have hit upon a plan of slicing them, thereby saving all the wood, and cheapening the process as well. We can furnish them 8½ inches long for L. frames at 50 cts. per 1000 by mail; 40 cts. shipped with other goods. Small lots at 10 cts. per 100 postpaid.

Other lengths can be furnished as well. If shorter, same price in 1000 lots. If longer, add fifty per cent up to 12 inches long.

CARTAGE CHARGE ON ORDERS FILLED BY OUR CITY BRANCH OFFICES.

The expense of doing business in our large cities is so great that we can not continue furnishing goods at regular prices free on board cars from our city branch offices. It is a great accommodation to many customers, especially in the busy season, to be able to secure goods promptly and at lower freight rates from these distributing centers, and I am sure they will be willing to share with us the heavy expenses necessary to make this accommodation possible. Hereafter on all orders from Chicago, New York, Philadelphia, and Washington offices, shipped by freight, a cartage charge of 25 cts. will be made on orders of \$3.00 or less; 35 cts. on orders of \$3.00 to \$5.00; 50 cts. on orders of \$5.00 to \$10.00; over \$10.00 in value, 5 per cent of the bill, or 20 cts. per 100 lbs., if that figures less than the 5-per-cent plan.

These charges do not cover the cost to us, but represent a fair division of the cost.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forward-looking people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in December, deduct 4 per cent.			
"	"	January,	3½ "
"	"	February,	3 "
"	"	March,	2½ "
"	"	April,	2 "

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-scapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

PRICE LIST OF HAND SECTIONAL HIVE AND PARTS.

We have had numerous calls for sectional hives just as Mr. Hand uses them. We will not list them in our catalog for the coming season, but will make them up to supply on special order, to those who desire to try them, at prices in table below. The outside dimensions being nearly the same as the regular Dovetailed hive, the regular covers and bottoms can be used.

Each section is 19½ in. long, 5½ in. deep outside; upper portion of side removable with clamps to hold it in place. Sections used are 4½x4½x1½ plain, split three sides. Furnished in both eight and ten frame size

	Designating or Short Name	Nailed and Painted Each	In Flat		
			Each*	Five	Weight of 5
Hand brood or extracting section, including the frames, springs, clamps, and nails; no foundation	Hand 8-8	\$ 65	\$ 50	\$ 2 25	35
Hand brood or extracting section, including the frames, springs, clamps, and 1-inch foundation starters	Hand 8 10	70	55	2 50	40
Hand brood or extracting section, including the frames, springs, clamps, and 1-inch foundation starters	Hand 9-8	75	60	2 50	35
Hand brood or extracting section, including the frames, springs, clamps, and full sheets comb foundation	Hand 9-10	80	65	2 75	40
Hand comb-honey section, including section-frames, and fences; no sections or foundation starters	Hand 0-8	1 30	85	4 00	38
Hand comb-honey section, including section-frames, fences, sections, and full sheets comb foundation	Hand 0-10	1 40	95	4 50	43
Hand comb-honey section, including section-frames, fences, sections, and full sheets foundation	Hand 2-8	75	60	2 75	30
Hand four-section hive including two brood and two comb-honey sections; no sections or foundation starters	Hand 2-10	80	65	3 00	3½
Hand four-section hive including two brood and two comb-honey sections with sections and full sheets foundation	Hand 1-8	1 45	1 00	4 75	25
Hand sectional super, no inside fixtures, including clamps, nails, and flat tins	Hand 1-10	1 55	1 10	5 25	40
Hand brood-frames, 4½x17½x1½; ends, 1½x8; top, 1½x8; bottom, ½x1½	HandCE882-8	3 50	2 65	12 00	180
Hand section-frames, 4½x17½x1½; ends and top, 1½x8; bottom, 1½x8	HandCE822-10	3 75	2 90	13 25	190
Hand fences, 4½x17½, P style	HandCE0011-8	6 30	4 25	20 00	260
	HandCE0011-10	6 75	4 70	22 25	210
	Hand Super-8	40	30	1 25	22
	Hand Super-10	43	32	1 35	24

Hand brood-frames, 4½x17½x1½; ends, 1½x8; top, 1½x8; bottom, ½x1½ \$2.00 per 100 in flat; \$18.00 per 1000
Hand section-frames, 4½x17½x1½; ends and top, 1½x8; bottom, 1½x8 2.50 " " 22.00
Hand fences, 4½x17½, P style 1.75 " " 16.00 "

Orders for these hives can be filled only from Medina, as they are not in stock at branches and agencies, and will not be carried in stock unless the demand for them warrants it. Orders placed early, giving time for delivery, can often be forwarded in cars to nearest distributing point if so requested.

ALFALFA HONEY, COMB AND EXTRACTED.

We have received in the last few weeks a car each of comb and extracted alfalfa honey. The extracted comes from Utah, and the comb from western Colorado. We are selling the extracted in 60-lb. cans at 10 cts. in single-can lots; 9½ cts. by the case of two cans; five cases or more at 9 cts. per lb.

The comb honey, 24 sections to the case, sells at \$4.00 per case; per crate of 8 cases or more, \$3.80 per case; 25 cases or over, write for prices. No. 2 honey at 30 cts. per case less. We also have some New York and Pennsylvania white comb honey at 18 to 20 cts. per lb., according to quality or grades. We are in the market to buy clover extracted honey. If any of our readers have any to offer, mail sample and write us, stating how much you have, how packed, and what you ask for it.

CATALOG FOR 1908.

The work of revision on our catalog for 1908 is nearly completed, and we hope to have some ready for distribution by Jan. 1. We are revising descriptive and price tables on hives. The price list of Hand hives in this department shows the style in which all hives except the chaff will be priced in the new catalog. Several new items will be included in the new catalog, and the changes in price of some items as noted in this department will be included. We insert prices only for small lots or single articles this year. The price of larger quantities will vary according to location and conditions, as the catalog is used by the dealers and agents who pay freight from here to them, which freight varies according to distance. Larger quantity prices will be quoted on application.

THE NEW EDITION OF THE A B C OF BEE CULTURE NOW READY FOR DISTRIBUTION.

The new edition of the A B C of Bee Culture has finally, after a great deal of labor, been completed. So far from being merely a work for beginners, or the A B C, it is also an X Y Z of the business, and hence equally valuable to the veterans, for it gives all the latest processes and methods of the most advanced bee-keepers, as well as those that may be used by the novice.

It very often occurs that an experienced bee-keeper has, within a year or so back, read such and such a method for producing comb honey or some one else's plan for the prevention of swarming. He has not kept a file of the journals. He can not remember in what issues those methods appear. On reading them at the time, he determined to give them a further test when the season opened up; but where, oh! where, can he find those journals containing just the articles that describe these methods? Well, the new work has given in brief some of the most important; and all he has to do is to turn to the index and find what he wants boiled down in clear language.

Then, again, it often happens that the bee-keeper hears about the Heddon method of transferring, or reads something about Alexander's method of strengthening weak colonies in the spring. Again, he sees something about the Doolittle or the J. E. Hand scheme for producing comb honey in connection with the divisible-brood-chamber hive. He is all at sea; but the new volume will tell him all about these and more.

But in a scientific way the A B C and X Y Z is far ahead of what it has ever been before. The botanical list of honey-plants has been almost entirely re-written by W. K. Morrison; the chemistry of honey, of glucose, and of nectar are all covered by the same writer.

Mechanically the new edition has been improved by the use of an almost entirely new set of engravings, the old ones being reengraved, and the use of enamelled book paper, the most expensive paper of the kind procurable. This brings out not only the letter-press but the engravings as well to a point of brilliancy and clearness that is pleasing.

But it would take quite a little volume to tell about the new features of this magnificent work, and the reader will have to see it in order to appreciate its merits. While it is nearly 100 pages larger, and all told 300 pages of new matter, the price has been increased only slightly—from \$1.20 by mail to \$1.50, or \$1.25 if sent with other goods. Or in half morocco, \$2.00, postpaid, or \$1.75 with other goods. Full leather, \$2.50, postpaid, or \$2.25 with other goods.

Convention Notices.

The annual convention of the Tri-state Bee-keepers' Association will be held at Wheeling, W. Va., on December 18th, at the hall of the Knights of the Golden Eagle, corner of 38th and Jacob Streets. Mr. L. C. Seabright, of Blaine, Belmont Co., Ohio, and Col. Henry Lewedag, of 38th Street, Wheeling, have made arrangements for an up-to-date entertainment, and a good time is expected. Visitors will be welcome.

NEW YORK STATE BEE-KEEPERS' CONVENTIONS.

A series of bee-keepers' meetings will be held in this State as follows: Mt. Morris, Dec. 9; Canandaigua, Dec. 10, 11; Auburn, Dec. 12; Syracuse, Dec. 13; Fulton, Dec. 14; Watertown, Dec. 16, 17; Amsterdam, 18, 19; Albany, Dec. 20; Glens Falls, Dec. 21. Mr. C. Stewart, of Sammonsville, N. Y., has been designated as conductor, and he will be present at all of the meetings. The annual meeting of the New York State Association of Bee-keepers' Societies will be held at Amsterdam, Dec. 18, 19. All interested in bee-keeping are invited to attend these meetings.

Romulus, N. Y.

C. B. HOWARD, Sec.

The Michigan Bee-keepers' Association will hold its annual meeting at Saginaw, the first session being on Wednesday evening, Dec. 18, and the last one on Friday afternoon, the 20th. Headquarters will be at the Sherman House, at which the special rate of \$1.50 per day has been secured. Among the speakers will be R. F. Holtermann, of Brantford, Ont.; L. A. Aspinwall, Jackson, Mich.; E. D. Townsend, Remus, Mich.; W. J. Manley, Sandusky, Mich., and W. Z. Hutchinson, Flint, Mich.

An exhibit of honey and wax will be made, and premiums are as follows:

Best single section of comb honey, one Advance bee-veil by The A. G. Woodman Co., Grand Rapids.

Best six sections of comb honey, 500 sections by The A. G. Woodman Co.

Best 5 lbs. of beeswax, one Hilton hive by Geo. E. Hilton, Fremont, Mich.

Best 5 lbs. of extracted honey, choice of one year to *Bee-keepers' Review* or one copy of *Advanced Bee Culture* by W. Z. Hutchinson, Flint, Mich.

Best suggestion or plan offered to increase membership of the association, the same to be in writing, and not more than 150 words, one copy of *de luce* edition of the new A B C of Bee Culture, M. H. Hunt & Son, Redford, Mich. For further information write to

ELMORE M. HUNT, Redford, Mich.

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N. E. FRANCE, Gen. Man.

NOTICE!

This is to notify you that Norris & Anspach, Kenton, Ohio, are no longer our agents and we can not be responsible for any orders sent them. If you wish any of our goods, kindly send your orders to our agents, Cleaver & Green, Troy, Penna.

Agents wanted to handle our goods by the carload for the State of Ohio. Write us at once.

G. B. Lewis Co., Watertown, Wis.

ABC^{AND} XYZ

— of —

Bee Culture

By A. I. and E. R. ROOT

New 1907 Edition

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Only two years have elapsed since we brought out an edition of 15,000 copies of the well-known A B C of Bee Culture. This brought up the number to 100,000 copies, thereby surpassing in popularity all other bee-books ever printed.

The demand for these has been so great that we were compelled to undertake a new edition at once, and in doing so we took the opportunity to revise and greatly enlarge it again, though it had been generally considered quite a large book.

In doing so we brought in new blood to assist us, give new ideas, and otherwise enable us to produce as good a book as it is possible to make at a popular price. If you will carefully examine a copy you will be prepared to admit the new volume is quite an improvement on its predecessors. To keep pace with improvements it contains nearly 100 double-column pages more than the previous edition.

The new methods of queen-rearing have been carefully reviewed, and the main points incorporated in the new edition, so that the practical bee-keeper who possesses a copy will have the best ideas of the subject constantly by his side for reference.

The new methods of wax-production are treated in an exhaustive fashion; and as this subject is now of more importance than formerly, more space has been devoted to it.

The new power-driven automatic extractors are amply illustrated and described. The subject of diseases has received entirely new treatment to keep pace with the new discoveries of the last few years. The laws relating to bees have for the first time received full treatment. No other bee-book treats of this very important subject. Honey, sugar, nectar, and glucose are carefully defined in accordance with the demands of our new pure-food laws.

In accordance with the ideas of its first author, A. I. Root, the new A B C and X Y Z is *eminently practical*.

German edition (new), paper covers, \$1.75; cloth-bound, \$2.00. Postpaid anywhere. This is the famous A B C in the language of the Fatherland, to suit our many German friends.

French edition (new), cloth-bound, \$2.00, postpaid. This is another edition, translated into the beautiful language of France.

2027c

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